

The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XIX. No. 490

NOVEMBER 17, 1928

Prepaid Annual Subscription:
United Kingdom, £1.10; Abroad, £1.15.

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THE CHINA CLAY TRADE REVIEW: Basic Industrial Minerals:
No. II.—Barytes, by Dr. G. Malcolm Dyson, etc..... 5-10

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.

Editorial and General Offices: Bouverie House, 154, Fleet Street, London, E.C.4.

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Progress of Overseas Chemical Trade

WHEN Mr. Ormsby-Gore, M.P., addressing the 450 guests representative of every aspect of chemical industry at the joint chemical dinner last week, referred to the industry as being in a reasonably flourishing condition, his reference excited no surprise or protest. The company, caught in an agreeable social mood and itself bearing some appearance of reasonable prosperity, accepted it as a matter of fact, although, when the Income Tax, or an advertisement renewal, or the annual subscription to the Homes for Decayed Gentlefolk is nearly due, a sorrowful, if not always convincing, tale of financial and trade stringency is produced with surprising ease. The truth, we suspect, is very much as the Colonial Under-Secretary stated it—the British chemical industry, in spite of its troubles and alarms, is not doing badly.

If independent confirmation of this is needed, it is to be found in the Board of Trade returns for October, which are good all round and which make the temporary set-back experienced in September the more difficult to understand. As compared with October of 1927, there is a decrease of £200,515 in chemical imports, an increase of £261,107 in chemical exports, and an increase of £370 in chemical re-exports. Comparing the ten completed months of this year with the same period last year, chemical imports have declined £145,063 and chemical exports have increased

£1,962,714. No one can make such figures mean anything but steady progress. An encouraging feature of the detailed figures is that the two good tendencies they exhibit—restriction of imports and expansion of exports—apply practically to the whole range of chemical products. There are very few examples of startling changes; the only one on the import side is the decline of coal tar products from £85,696 to £9,781. On the export side the improvement is due to a general advance rather than to exceptional increases in one or two sections. In the recognised markets for sulphate of ammonia—Spain and the Canaries, for example—a decrease is recorded. The biggest advance is in "other countries," to which last month exports were worth £140,301 as compared with £65,401 in October of 1927. In the important coal tar products market, exports have advanced from £139,473 to £198,055, in sulphate of copper from £10,664 to £52,388, in dyes and dyestuffs from £70,096 to £96,433. After the September figures, the October returns are welcome and reassuring; they show British chemical industry to be moving consistently in the right direction.

Another New Vat Dyestuff

IN addition to the production, recently announced, of the new British colours, Caledon Browns R and C, taking the place of the previously imported German colours, Indanthrene Browns R and C, another notable success has now to be credited to the British industry, and to Scottish Dyes, Ltd., in particular, in the production of a newly-discovered vat dyestuff now manufactured for the first time, Caledon Green RC. This entirely new colour which Scottish Dyes, Ltd., has just brought out has the great advantage that it provides full-toned shades of green which in the past have been normally obtained by mixing yellows and blues. The convenience of having a single "straight" colour instead of a mixture is obvious; "ending" difficulties in piece-dyeing and similar troubles are avoided. In addition, the new colour provides faster shades for the yarn dyer than current yellow and blue mixtures. It is applied by the hot dyeing method. The standard of fastness to light, washing, and kier boiling is "excellent" and to chemic "very good." It is very level dyeing, and therefore suitable for natural and artificial silk. The purity is high and the colour can be used in all types of dyeing machines. For printing, the potash method is the most satisfactory. The samples we have seen of the dye applied to mercerised cotton, silk, and viscose are distinguished for the clearness and purity of the tones, which vary from very delicate to deep rich shades according to the strength of the dye bath—in the lightest 2 per cent. and in the deepest 20 per cent. The production of Caledon Green RC adds yet another to the very notable succession of achievements standing to the credit of Scottish Dyes, Ltd.

Coming Events

THE announcement that Dr. Herbert Levinstein, already a vice-president of the Society of Chemical Industry, is to act as chairman of the Council in the absence of the new president, Dr. Arthur D. Little, is interesting from several points of view. It is, first of all, welcome evidence that Dr. Levinstein's health is satisfactorily restored, and that he contemplates a return to his former activities in connection with the Society. The position of deputy to the present president, who lives in the United States, must induce some little speculation as to what may happen at the close of Dr. Little's term of office at Manchester next year. Twelve months' experience in the chair of the Council should be a valuable training for the office of president, and in the event of Dr. Levinstein being nominated as his successor, Manchester would be a peculiarly appropriate city for the event.

Another matter on which there is some speculation is the secretaryship of the Society. The applications for the post of general secretary, "who shall also have the position of general manager of the Society's affairs," were to be in by October 11. In due course, no doubt, the new policy on which the Society has decided to embark, of appointing a general manager of its affairs, will be satisfactorily explained. In the meantime, however, it is not surprising to hear inquiries and speculations as to the powers to be exercised by the new managing director and his relation to the present governing bodies. The new post presents great opportunities as well as some risks, and the change is of great importance, one way or the other, to the future of the Society. For this reason it is to be hoped that the Society will command the services of someone equal to the powers and responsibilities to be vested in the new office.

Low-Temperature Carbonisation

CONSIDERABLE interest has been aroused by the announcement by Low Temperature Carbonisation, Ltd., that an agreement has been concluded between the latter company and the South Metropolitan Gas Co., whereby the gas company will undertake the manufacture, under license, of smokeless fuel (Coalite) by the British Parker system of low-temperature carbonisation. A Coalite plant capable of distilling over 2,000 tons of coal per week will be erected at the West Greenwich works of the South Metropolitan Gas Co., which will thus add 75,000 therms a week to its gas-producing capacity. It is claimed that this is the first occasion on which a gas company in Great Britain will put into operation a commercially-trying British process of low-temperature carbonisation. The plant which is being erected by the Gas Light and Coke Co. at Richmond, is, of course, of a type developed not under commercial auspices, but by the Fuel Research Board.

This announcement is of very considerable importance. For some time past, judgment with regard to the commercial possibilities of low-temperature carbonisation has been reserved, and, while the results of this new development remain to be seen, there is no doubt it will carry a good deal of weight.

Books Received

- CITY OF SALFORD. ANNUAL REPORT OF THE CITY ANALYST FOR THE YEAR 1927. By H. H. Bagnall. Pp. 54.
- DIE WERKSTOFFE FÜR DEN BAU CHEMISCHER APPARATE. By Dr. A. Fürth. Leipzig: Otto Spamer. Pp. 220. 20 Rm.
- LABORATORY METHODS OF INORGANIC CHEMISTRY. By Heinrich Biltz and Wilhelm Biltz. Translation by William T. Hall and Arthur A. Blanchard. London: Chapman and Hall, Ltd. Pp. 261. 12s. 6d.
- ARTIFICIAL SILK. By Ing. Dr. Franz Reinthaler. Translated by Dr. F. M. Rowe. London: Chapman and Hall. Pp. 276. 21s.
- SELF AND SOCIETY BOOKLETS: London. Ernest Benn, Ltd. 6d. each.
- No. 7. Labour and the Community. By W. M. Citrine.
- No. 8. Religion Interferes. By Dr. Hewlett Johnson.
- No. 9. The Meaning of Trade. By Margaret Bondfield.
- No. 10. The Way of Peace. By Leonard Woolf.
- No. 11. Co-operation and Private Enterprise. By Henry Clay.
- No. 12. Ought We to Save? By Sir George Paish.
- A BIBLIOGRAPHY OF METALLIC CORROSION. By W. H. J. Vernon. London: Edward Arnold and Co. Pp. 341. 21s.
- INORGANIC QUANTITATIVE ANALYSIS. By Harold A. Fales. London: G. Bell and Sons, Ltd. Pp. 493. 12s. 6d.
- COLLOID SYMPOSIUM MONOGRAPH. Edited by Harry Boyer Weiser. New York: Chemical Catalog Co., Inc. Pp. 347. \$6.50.

The Calendar

Nov.		
19	Institute of Chemistry (Leeds Area Section): Annual General meeting. "The Costing of Chemical Manufacturing Processes." L. Staniforth. 7.15 p.m.	Great Northern Hotel, Leeds.
19	Speeches and Discussion on American Tour	Chemical Industry Club.
19	Second International Conference on Bituminous Coal.	Carnegie Institute of Technology, Pittsburgh, U.S.A.
20	Royal Institution of Great Britain: "Diamonds." Sir William Bragg. 5.15 p.m.	21, Albemarle Street, London.
20	Sir John Cass Technical Institute: Lectures on Chemical Plant. VI.—Fused Silica and Its Applications in Chemical Industry. R. W. Clark. 7 p.m.	Jewry Street, Aldgate, London.
21	Institute of Chemistry (London Section): Annual General Meeting.	London.
21	Institute of Fuel: Annual Two Days' Conference. 10 a.m.	Institution of Electrical Engineers, Victoria Embankment, London.
22		Stourbridge.
20	Society of Glass Technology 2.30 p.m.	
21	Society of Chemical Industry: "Impressions of Some Canadian and American Industries." B. P. Hill. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
21	Society of Chemical Industry (Nottingham Section): "The Preservative Principle of Hops." Dr. F. L. Pyman. 7.30 p.m.	University College, Nottingham.
21	Society of Glass Technology. 2.30 p.m.	Stourbridge.
21	Society of Dyers and Colourists (Midlands Section). Joint meeting with Foreman Dyers' Guild: "Dyeing of Pure Silk Hose." H. Mudford. 7.45 p.m.	Globe Hotel, Leicester.
21	Institute of Chemistry (Huddersfield Section). "Protons and Electrons in Modern Chemistry." Professor H. M. Dawson.	Huddersfield.
22	Institute of Brewing (Midland Counties' Section): "Transmission of Power." Mark Jennings.	White Horse Hotel, Congreve Street, Birmingham.
22	Institute of Chemistry (Belfast and District): Annual Dinner.	Belfast.
23	Institute of Chemistry and Society of Chemical Industry: Annual General Meeting. 7.30 p.m.	Thomas' Cafe, High Street, Swansea.
24	Oil and Colour Chemists' Association (Manchester Section): Fourth Annual Dinner and Dance.	Manchester, Ltd., Restaurant, Cross Street Manchester.

Annual Chemical Dinner : A Record Gathering

Speeches by Mr. Ormsby-Gore and Dr. Clayton

WHAT has come to be known as the "Annual Chemical Dinner," in which all the leading chemical organisations co-operate, was this year by far the most representative gathering of the kind yet organised. It was held at the Connaught Rooms; the company numbered roughly about 450; the speaking by the Chairman (Dr. G. C. Clayton, M.P.) and Mr. W. G. A. Ormsby-Gore, M.P., Under-Secretary for the Colonies, was good and not too long; dinner and speaking were over for once in good time for the dancing that followed; the arrangements had that absence of fuss that indicates good organisation beforehand, and the acknowledgment from the Chair to Mr. F. A. Greene who, with his headquarters at

ment to do it for them. There was no doubt that the chemical industry in this country was in a reasonably prosperous condition, and was broadening out in many new directions. He was convinced that all possibility of progress in the standards of living and the degree of civilisation of the people depended on all the sciences going forward together with industry.

His own particular sphere of work for years past had lain not in this country, but in the British Dominions. In the last ten years he had visited twenty-two of our overseas possessions, and on each successive visit he had come back more and more convinced that all the possibilities of advance and development, especially in tropical countries, depended on what the scientist, and especially the chemist, could do. In the tropics Nature was incredibly bountiful, and there was no limit to the immense wealth that might be won; on the other hand, development was hindered by the prevalence of tropical diseases, not only among men, but among domestic animals and plants. He had seen examples, as in the case of the sugar cane, of the wonderful results that were to be traced to the work done in remote laboratories by a few devoted workers. The hope of the future lay in science taking a bigger part in the general scheme of things, and no class deserved more the support of public men than earnest scientific workers engaged in extending the boundaries of fundamental knowledge. (Applause.)

In conclusion, Mr. Ormsby-Gore touched on modern developments in bio-chemistry, which he regarded as a branch with tremendous possibilities for good to the people.

Dr. Clayton's Early Experiences

The Chairman, in responding to the toast, said that after his speech they must all regret that chemical science had lost Mr. Ormsby-Gore, who, after studying chemistry at Eton and Oxford, fell away from grace by becoming a politician. (Laughter.) It was satisfactory to know, however, that he was making some return by the interest he was taking in science.



MR. ORMSBY-GORE

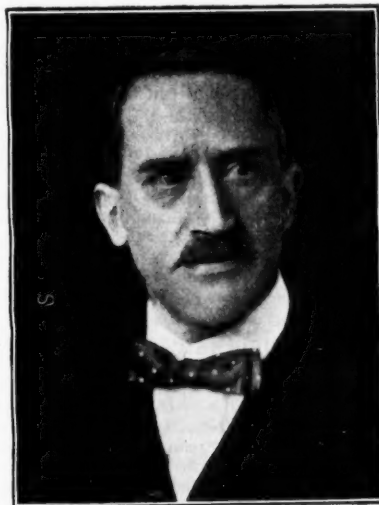
the Chemical Industry Club, was responsible for them, was fully deserved. The evening, in a word, was a complete success.

Apart from the loyal toasts there was only one toast on the programme—that of "Chemistry," proposed by Mr. Ormsby-Gore, M.P., and responded to by the Chairman.

Empire's Debt to Chemistry

Mr. Ormsby-Gore, M.P., remarking that politics and science were really rather the negation of each other, added that politicians these days were beginning to learn a little humility. Such problems as unemployment were not so easy to be solved as people thought; people were coming to realise that all progress in national welfare depended on the ever-widening application of assembled and ascertained knowledge to industry. The problem of the coal industry, for example, was not to be solved by So-and-So getting up in the House of Commons and explaining the wonders of some low temperature carbonisation process with which he happened to be connected. (Laughter.) The fact was that we were only at the beginning of that and many other problems. It was quite true that since the war especially, England had awakened to the fact that in the past she had neglected the scientific aspects of things, and had come to realise that the Department of Scientific and Industrial Research was a national necessity. The Government had been very fortunate to have in Sir Frank Heath, and later in Mr. Tizard, the present head of that department, such sound advisers as to where public money ought to be expended and where matters were best left to private enterprise. Whereas formerly a man was regarded as having a good general education if he could write a decent piece of Latin prose, nowadays he was not an educated man unless he knew some chemistry, some physics, and some biology.

That assembly, said Mr. Ormsby-Gore, represented all branches of chemical industry, which had a very good record for having done its own work instead of looking to the Govern-



DR. C. G. CLAYTON.

"In the House of Commons," Dr. Clayton said, "all parties are agreed that wherever else economy is practised, there must be no false economy in the grants made to scientific research. That is a new feature in this country; we appreciate the work of science very much more than we did thirty years ago. About that time, a friend of mine who wished to get into the chemical industry applied to the late Lord Leverhulme for a position in a soap works. Lord Leverhulme's reply was 'that he did not see there was any necessity for a chemist in a soap works. I had a similar experience a little earlier. I had left

college, and had come back from Germany with a degree, and wanted to get into an industrial position. I applied to another soap company, and the reply I got was: "After some considerable difficulty we have succeeded in getting rid of our chemist, and we don't want to engage another." (Laughter.)

Conditions, Dr. Clayton added, were different to-day. No industry, whatever its work was, could be considered properly and efficiently conducted without chemical advice. Many industries were obtaining that advice through their research associations or through their own research departments. The Department of Scientific and Industrial Research was encouraging those associations, and the work that was being done was extremely valuable to the industries concerned. At the head of the department was Lord Balfour, a strong supporter of the view that science was essential to industry, and one who took great interest in all scientific developments. They had just obtained another recruit in Lord Birkenhead, who had joined the board of Imperial Chemical Industries, a very important recruit from the public-speaking point of view, whose services would be invaluable in presenting the claims of chemical science throughout the country. He could not conclude without congratulating the various societies on that remarkable gathering, which enabled the members of the different organisations to meet together. The arrangements had been undertaken by the Chemical Industry Club, and Mr. F. A. Greene, who had been personally responsible for the organisation, was to be congratulated on the success attained and thanked for the work he had put in. (Applause.)

The remainder of the evening was given up to dancing.

List of Guests

The guests at the "high" table, in addition to Dr. and Mrs. Clayton (who received the guests) and Mr. Ormsby Gore, included Professor and Mrs. Thorpe, Sir E. J. Russell, Professor and Mrs. Smithells, Professor and Miss Donnan, Mr. C. A. Hill, Mr. and Mrs. E. Hinks, Dr. J. J. and Mrs. Fox, Dr. and Mrs. Levinstein, Sir R. and Lady Robertson, Dr. F. B. Dehn, Mr. W. J. U. Woolcock, Mr., Mrs. and Miss Carr, Mr. W. Macnab, Mr. and Mrs. E. R. Bolton, Mr. and Mrs. Chaston Chapman, Sir A. Walker, Professor C. H. Desch, Mr. and Mrs. F. A. Greene, Professor J. W. Hinchley, Mr. F. E. Hamer.

The very large company also included Professor and Mrs. Brame, Mr. S. E. Carr, Mr. A. J. Chapman, Mr. F. H. Clifford, Mr. and Mrs. Coley, Dr. and Mrs. Cranston, Mr. and Miss Coleman, Mr. and Mrs. A. A. Drummond, Dr. J. R. Duggan, Mr. and Mrs. Bernard Dyer, Dr. and Mrs. Vargas Eyre, Mr. and Mrs. Garland, Captain and Mrs. Goodwin, Mr. and Mrs. B. Hickson, Mr. and Mrs. Miller Jones, Dr. and Mrs. Jordan, Dr. Percy May, Mr. J. M. and Miss Leonard, Dr. and Mrs. Lessing, Dr. J. P. Longstaff, Professor and Mrs. Lowry, Mr. and Mrs. Marlow, Dr. and Mrs. Miall, Dr. and Mrs. Morrell, Dr. and Mrs. Ormandy, Mr. and Mrs. Parrish, Mr. and Mrs. Pilcher, Mr. and Mrs. Davidson Pratt, Dr. E. B. R. Prideaux, Mr. and Mrs. Reavell, Mr. and Mrs. Ronca, Dr. Percy Spielmann, Mr. and Mrs. H. Talbot, Dr. E. H. Tripp, Mr. and Mrs. S. J. Tungay.

Lithium in Canada

REPORT No. 687 of the Mines Branch of the Dominion Department of Mines, dealing with "Investigations on Mineral Resources and the Mining Industry, 1926," contains, *inter alia*, an article by Mr. H. S. Spence in regard to "Lithium. Minerals in South Eastern Manitoba," where a discovery of an important deposit was reported in 1924. The deposit in question is now under development by an English company and was the first indication of the existence in Canada of lithium minerals of economic importance. Since 1924, prospecting has been stimulated and lithium minerals have been reported from a number of localities in the province, these including Cat Lake, Bernic Lake, and West Hawk Lake, all in the south-eastern portion of the province. The report in question may be consulted at the Canadian Building, Trafalgar Square, London, S.W.1, and copies can be obtained from the Mines Branch of the Dominion Department of Mines at Ottawa.

The Catechin Problem

To the Editor of THE CHEMICAL AGE.

SIR,—Professor Robinson's statement (p. 432) that "precise details for the oxidation of cyanidin to a well-defined yellow product have not yet been published" cannot be substantiated, in view of the following abstract from Willstätter and Everest (*Annalen*, 1913, **401**, 231):—

"Eine interessante Umwandlung erleidet das Cyanidin, wenn wir seine alkoholische Lösung mit verdünntem Wasserstoffsperoxyd anstatt mit Wasser erwärmen. Nach der Entfärbung setzen wir einige Tropfen verdünnter Salzsäure zu und erhitzen im Wasserbad weiter. Die Flüssigkeit wird gelb, durch Extrahieren mit Aether lässt sich ein Produkt isolieren, das schöne, hellgelbe Krystalle bildet und mit Alkalien tief gelbe Lösungen liefert."

In fact, we are entirely at a loss to account for the above statement on the part of Professor Robinson, since in a paper with Dr. Pratt (*Jour. Chem. Soc.*, 1925, **127**, 172), working with their synthetic cyanidin, he states as follows:—

"Willstätter and Everest state that cyanidin on oxidation with hydrogen peroxide yields a yellow, crystalline product closely resembling a flavonol colouring matter. . . . We have made numerous experiments with the object of achieving this transformation, but any definite products isolated have been either carboxylic acids or coumarin derivatives."

All that we claim is to have confirmed (*Berichte*, 1928, **61**, 792) both the results of Willstätter and Everest, and those of Pratt and Robinson, with regard to natural and synthetic cyanidin:—

"Beim Nachprüfen dieser tiefgehenden Widersprüche, wofür wir grössere Mengen beider Verbindungen verwendet haben, finden auch wir, dass Cyanidin-chlorid das gelbgefärbte Oxydations-produkt und zwar in guter Ausbeute liefert, während das 3 : 5 : 7 : 3¹ : 4¹-Pentaoxyflavyliumchlorid auch nicht die geringste Spur dieses Oxydations-produktes gibt."

We have also offered to demonstrate the differences between natural cyanidin and the synthetic product (this journal, p. 361). Even without our contribution the fact remains that natural cyanidin behaves differently from the so-called synthetic. Hence nothing has transpired from the correspondence with Professor Robinson: the position remains as described by one of us (p. 291), namely: "The chemistry of cyanidin is still *sub judice*" and "nothing whatever can be deduced from it as to the constitution of catechin." We therefore heartily agree with Professor Robinson that "further discussion of the subject is futile."—We are, etc.,

T. MALKIN.

M. NIERENSTEIN.

The University, Bristol.

Importance of Using Fresh Explosives

To promote efficiency in the use of "permissible" explosives, coal-mine operators are urged by Dr. Charles E. Munro, Chief of the Explosives Division, United States Bureau of Mines, to make use of only freshly made explosives in their blasting operations. To make sure of this being done, it is recommended that they purchase permissibles, or have deliveries of them made in such quantities only as can be consumed in blasting in a reasonably short time, say three months, and that permissibles be so stored in magazines that all of the older explosives in a magazine shall be checked out and used before any part of a fresh consignment in the magazine is issued. It is obvious that substances such as explosives, which are of a complex nature, and easily affected by a variety of causes, will not long remain definitely unchanged.

Shareholders Ratify U.S. Chemical Combine

THE negotiations for the amalgamation of the well-known American chemical companies, E. I. du Pont de Nemours and Co. and the Grasselli Chemical Co., have now advanced a stage further. The stockholders of the Grasselli company have agreed to the proposed amalgamation on the basis of five of their shares for one du Pont share.

The Production, Properties and Uses of Zinc Oxide—(II)

(From a Correspondent)

Below appears the conclusion of an article the first part of which was published in these columns last week.

It is impossible to obtain reliable figures for the amount of zinc oxide used in the rubber industry, but it is known that this quantity has increased enormously of recent years. When added to a rubber mixing, zinc oxide not only functions as a filler or as a white pigment, for if it were used for these purposes only it might easily be replaced by a less costly substance; by its presence, however, zinc oxide increases the tensile strength, and improves the general mechanical properties of the vulcanised rubber to a very remarkable degree, and this effect is at the moment rather inexplicable. Consequently it is used widely in rubber mixings for many purposes where its colouring properties are entirely masked. Again, it has been firmly established that the presence of zinc oxide in a rubber mixing is essential when working with many of the modern organic vulcanisation accelerators if these latter are to exert their maximum effect. It is highly probable that the zinc oxide, in such a case, plays a very important part in the actual mechanism whereby the accelerator functions.

Zinc oxide is also employed in the glass industry and in the preparation of crystalline glazes, which are formed by the separation of zinc silicate on slow cooling of the glaze. It has a smaller coefficient of expansion than other glazes, and when melted on to pottery or stoneware is less liable to "craze" than lead glaze. Zinc oxide can also be used in substitution for the more expensive tin oxide employed for the production of opalescent glazes.

Zinc soaps are manufactured by thoroughly mixing about 0.25 per cent. of oleic or other fatty acid with zinc oxide and a little water. The resulting soap can then be mixed into an emulsion with raw or boiled oil.

Zinc Oxide as a Pigment

The principal use of zinc oxide is as a paint pigment, and for this purpose its purity of whiteness, freedom from discoloration by gases and atmospheric conditions, fineness and uniformity of quality, make it especially useful. The merits of zinc white as a paint pigment are summarised as follows:—Zinc white mixes well with other pigments, particularly with white lead. Zinc oxide made directly from ore is more durable than that made by burning spelter, and on a very large surface the difference in whiteness is soon apparent. Zinc oxide becomes very hard and brittle as the drying progresses, this being more noticeable with oxide made from spelter than with that directly from the ore. This difficulty is overcome, however, by treating the linseed oil with 0.33 per cent. of litharge before mixing with the zinc white, a flexible drying paint being thus produced, which is essential in the manufacture of oilcloth. On outside walls, zinc oxide paint well withstands the action of the atmosphere when used to the extent of 50 per cent. in admixture with white lead and barium sulphate.

The general consensus of opinion now among paint manufacturers is that a mixture of pigments is better than any single one. In these mixtures, zinc oxide is an almost invariable constituent, because it prevents chalking and gives a surface that retains its colour. Zinc white, when made into paint, dries rather slowly, so that it is necessary to use dryers with it. La Société de la Vielle Montagne recommend the use of manganese dioxide for this purpose, and directs that the linseed oil to be used should be maintained near boiling-point for twenty-four hours, with a basket of the dioxide in small lumps suspended in it. The oil is in correct condition when it has acquired a reddish tinge; it is then cooled, filtered and bottled for storage.

British Trade in Zinc Oxide

The following tables, which are compiled from official sources, show the movement of zinc oxide into and out of the United Kingdom during the five years, 1920, 1921, 1922, 1923 and 1924. The details for the last mentioned are not yet available. It will be noted that this country, although primarily an importer of zinc oxide, nevertheless possesses a by no means inconsiderable export trade even to the United States, the home of the zinc oxide industry. Practically the whole

of these exports are British-made material, for the re-export trade in oxide of zinc is small, being but 73 tons in 1920, 58 tons in 1921, 89 tons in 1922 and 17 tons in 1923.

IMPORTS AND EXPORTS OF ZINC OXIDE

Country of Origin.	1920. Tons.	1921. Tons.	1922. Tons.	1923. Tons.	1924* Tons.
Germany	711	991	1,416	1,010	—
Netherlands	153	263	1,389	2,450	—
Belgium	1,864	2,898	2,284	2,473	—
France	218	3	19	17	—
U.S.A.	2,774	156	236	832	—
Other foreign countries	22	173	294	205	—
Total Imports ..	5,821	4,489	5,638	6,987	8,613

The figures for 1920 and 1921 include 79 tons and 5 tons respectively from British possessions.

Country of Destination.	1920. Tons.	1921. Tons.	1922. Tons.	1923. Tons.	1924. Tons.
Sweden	77	31	171	77	—
Denmark	224	28	337	602	—
Netherlands	176	23	4	20	—
Belgium	50	1	20	305	—
France	84	6	488	370	—
Syria	—	126	177	183	—
U.S.A.	54	24	359	66	—
Chile	37	5	13	9	—
Brazil	161	13	48	28	—

Total to Foreign Countries	1,241*	359*	1,802*	2,212*	—
India	242	42	72	157	—
Canada	155	283	813	228	—
Total to British Possessions	532*	381*	1,069*	602*	—
Total Exports ..	1,773	740	2,871	2,814	3,521

* Includes countries not specifically enumerated.

The Trade in Leaded Zinc Oxides

Unfortunately, the figures given in the tables do not give quite an accurate representation of the true position, for they relate only to pure zinc oxide, while really the trade in leaded zinc oxides should logically be included. In regard to these latter products it is impossible to obtain reliable figures. In the official publications, however, there is a sub-classification of painters' colours which reads "Other descriptions," and it may be taken that leaded zinc whites represent a good volume of the products included in this category.

The United Kingdom possesses a very extensive export trade in this material (i.e., the total given in this category) as is shown by the total for 1920 of 383,447 cwt., for 1921 of 254,994 cwt., for 1922 of 345,964 cwt., and for 1923 of 390,731 cwt. The principal customers in 1923 were Holland (10,836 cwt.), Belgium (17,346 cwt.), France (17,088 cwt.), America (19,596 cwt.), Japan (7,019 cwt.), Chile (10,277 cwt.), Argentina (10,535 cwt.), South Africa (23,524 cwt.), India (40,000 cwt.), Australia (31,768 cwt.), New Zealand (18,975 cwt.), and Canada (20,644 cwt.).

On the import side of the U.K. trade in leaded zinc whites (by which is to be understood all the products included in the category given above), the totals for 1920, 1921, 1922, and 1923 were 50,985 cwt., 21,016 cwt., and 25,669 cwt.

Production and Trade in the United States

No statistics are available on the Belgian zinc oxide industry, but there are some in reference to the American industry. The output of zinc oxide in the United States in 1923 amounted to 309,669,568 lb., which compares with 117,127,315 lb. in 1921—a very remarkable increase. Imports of the product into the United States in 1923 reached the total of 3,200,000 lb., which compares with 5,500,000 lb. in 1922 and 1,886,000 lb. in 1921.

Ferro-Silicon Alloy Chemical Plant

Mr. S. J. Tungay's Lecture at the Sir John Cass Institute

On Tuesday, the fifth of the series of lectures on chemical plant organised by the Sir John Cass Technical Institute was delivered by Mr. S. J. Tungay, M.I.Chem.E., of Haughton's Patent Metallic Packing Co., Ltd.

Mr. Tungay dealt with "Ferro-Silicon Alloy Plant."

THE very great importance of the introduction into the chemical industry within the last 20 years of acid-resisting iron suitable for the construction of chemical plant, said Mr. Tungay, was perhaps only fully appreciated in Great Britain during the war. Previous to 1914, the metallurgy of the various acid-resisting iron appeared to have commanded the interest of comparatively few people in this country and in America, although more attention was being concentrated on the study of such alloys on the Continent.

It was difficult to over-estimate the enormous value of acid-resisting iron to the chemical industry as a material for the construction of apparatus and plant for industrial purposes. The shortcomings of the various materials to which the chemical manufacturer and chemical engineer were formerly tied, such as pottery, glass, quartz, and metals of a more or less corrodible nature, had long been recognised, and the chemical industry now more fully appreciated the great superiority of ferro-silicon or acid-resisting iron for dealing with acids and corrosive liquors.

Design of Plant

When acid-resisting irons were first placed upon the market, manufacturers, as well as users, were disposed to expect too much from them, on the hypothesis that where ordinary iron or steel, pottery or glass, had formerly been used, acid-resisting iron would form a complete and absolute substitute. This, however, had not proved to be the case. The peculiar nature of acid-resisting irons, coupled with the exceptional difficulties of their manipulation, soon made it apparent that the hitherto well-known designs of plant and apparatus for chemical processes would in many cases need considerable modification to permit of their manufacture in this material. Endeavours to manufacture exactly in accordance with generally-approved designs of chemical plant construction led in many cases to disastrous results and great disappointment in the early days of acid-resisting iron apparatus.

The great attractions of this metal, however, and its very real advantages to the chemical industry, proved such as to make it well worth while considering the entire modification of many hitherto standard designs of chemical plant.

Prior to the outbreak of war, the largest proportion of chemical plant constructed in acid-resisting iron was doubtless to be found in Germany. German manufacturers were not, however, successful in producing satisfactorily the metal or chemical plant made therefrom, and nearly all the best installations of plant constructed of acid-resisting iron were made in this country. Germany had made some considerable progress during the last few years, and it remained to be seen as to whether they would find a serious rival in the future from material made in that country.

Results of Research

At a meeting of the London Section of the Society of Chemical Industry at Burlington House in 1918, said Mr. Tungay, he pointed out that the composition and the acid-resisting properties of various of these iron alloys had been known for many years, and in describing "Ironac," the particular brand of acid-resisting iron with which he was connected, he stated that the difficulties of construction of plant lay in the extremely uncertain behaviour of the alloy, and the peculiar difficulties of its manipulation. Continued research and experiment had, however, enabled them to deal with these different alloys in such a way as to ensure greater stability, to improve the tensile strength, and to render homogeneous castings, vessels and parts, the manufacture of which would have been considered utterly impossible some 10 or 12 years ago.

It was in connection with the heavy chemical industry that the widest application of acid-resisting iron has been attainable, as the metal stood up excellently against sulphuric acid and nitric acid at varying densities, and at all temperatures. As a medium for constructing plant in connection

with the manufacture and use of sulphuric and nitric acid, Ironac acid-resisting iron was now very extensively used.

Ironac for Sulphuric Acid Plant

In connection with the manufacture of sulphuric acid, various parts of chamber plant had long been made of Ironac, such as pipes and bends to convey hot gases to towers and chambers, nitre pots for the introduction of sodium nitrate tower distributors, atomisers, and circulating pumps for sulphuric and nitro-sulphonic acids. The alloy was also used in connection with the catalytic production of sulphuric acid.

For the concentration and recovery of residual sulphuric acid, various designs of "Ironac" acid resisting iron plant were now well-known and widely used, several patents having been taken out by the speaker himself in this connection. Further, in connection with the industrial utilisation of both sulphuric and nitric acids, a large variety of apparatus had been manufactured, including many forms of retorts, pans, vessels, jacketed pans, autoclaves, sulphonating and nitrating apparatus, and other vessels especially suitable for containing these corrosive acids, either in a hot or cold condition.

Acid eggs and pressure vessels made of acid-resisting iron had been employed to some degree, but unless for low pressure purposes the acid-resisting ferro-silicon had not been recommended, owing to the fact that it was more brittle than ordinary cast iron.

Manipulation of Acid-Resisting Iron

In designing plant from acid-resisting iron, it had to be borne in mind that the metal was not malleable or ductile, and could therefore only be produced in the form of castings. If of the correct acid-resisting quality, it could not be turned, drilled, or screw-threaded, but was only machinable by grinding at high speeds with abrasive materials. Owing to the very considerable shrinkage of the castings in cooling, it had been found almost imperative that all flat surfaces be avoided, and vessels, instead of being flat bottomed, should be well rounded.

In the manufacture of pipes, either flanged connections or socket connections must be used, as the metal could not be screwed or tooled in a lathe. Covers of vessels must be domed, and the bottoms dished, and pipes and other similar castings should be so arranged that the cores were supported without chaplets. All cores had to be as stiff as they could be made, and particularly well supported in the prints so as to ensure clean and good castings.

Flanges of pipes and vessels could be webbed or filleted to the main body or surface of casting, and bolt slots cored in flanges in preference to bolt holes, which could not be drilled. Pressure vessels should not be subjected to a working pressure exceeding about 50 lb. per square inch.

Notwithstanding these limitations, it had been found possible to design some excellent installations of plant in "Ironac." Among the designs mentioned (and illustrated by lantern slides) were the following: nitric acid condensation plants of various types; sulphuric acid concentrators, of the cascade, visible, rippling and Duron types; acid-cooling apparatus; stills; retorts; and absorption towers.

Low-Temperature Carbonisation Plant for Ontario

THE *Montreal Gazette* states that a plant for the low-temperature carbonisation of Nova Scotia coal is shortly to be erected at Prescott, Ontario, on the River St. Lawrence. Plans have been designed for the construction of a plant capable of handling 300 tons daily, producing a solid, smokeless fuel which should be a strong competitor of imported anthracite. Bituminous coal is to be brought up the St. Lawrence by steamer throughout the season of navigation, and in sufficient quantity to enable the plant to continue operations throughout the winter months.

Chemical Trade Returns for October

Healthy Tone Maintained

THE Board of Trade returns for October indicate that imports of chemicals, drugs, dyes and colours during the month were valued at £1,197,221, a decrease of £200,515 on the corresponding month of 1927; exports at £2,221,797, an increase of £261,107; and exports of imported merchandise at £126,556,

an increase of £370. For the ten months ended October 31, 1928, imports were valued at £12,605,938, a decrease of £145,063; exports at £21,089,403, an increase of £1,962,714; and exports of imported merchandise at £845,731, a decrease of £33,576. The details are as follows:—

	Imports		Value			Quantities		Value	
	Month ended	Month ended	Month ended	Month ended		Month ended	Month ended	Month ended	Month ended
	October 31,	October 31,	October 31,	October 31,		October 31,	October 31,	October 31,	October 31,
	1927.	1928.	1927.	1928.		1927.	1928.	1927.	1928.
			£	£					
CHEMICAL MANUFACTURES AND PRODUCTS—					Bleaching Powder . . . cwt.	50,167	60,473	21,246	18,462
Acid Acetic tons	1,349	1,061	55,898	47,052	COAL TAR PRODUCTS—				
Acid Tartaric cwt.	880	2,385	4,081	15,160	Anthracene cwt.	—	—	—	—
Bleaching Materials . . .	16,718	10,284	11,421	8,658	Benzol and Toluol . galls.	345,418	663,894	18,641	45,928
Borax "	9,180	4,805	7,290	3,544	Carbolic Acid cwt.	13,515	18,823	24,439	34,136
Calcium Carbide . . .	79,331	91,810	47,405	56,560	Naphtha galls.	14,992	10,189	859	782
Coal Tar Products, not elsewhere specified	—	—	—	—	Naphthalene cwt.	1,701	10,688	1,042	3,543
Glycerine, Crude . . cwt.	1,956	10,269	6,768	17,661	Tar, Oil Creosote Oil, etc. galls.	1,503,699	2,253,400	56,259	82,557
Glycerine, Distilled . "	980	784	3,942	2,171	Other Sorts cwt.	68,604	48,257	38,233	31,109
Red Lead and Orange Lead cwt.	3,866	3,961	6,123	5,697	Total value	—	—	139,473	198,055
Nickel Oxide	377	106	1,760	549	Copper, Sulphate of . . tons	438	2,286	10,664	52,388
Potassium Nitrate (Salt-petre) cwt.	8,615	9,030	9,160	9,304	Disinfectants, etc. . . cwt.	39,869	45,203	101,056	117,908
Other Potassium Compounds cwt.	411,473	312,133	126,497	104,776	Glycerine, Crude . . . "	1,578	1,273	4,471	2,118
Sodium Nitrate . . . "	115,088	90,641	66,817	44,995	Glycerine, Distilled . . "	9,711	13,290	46,718	42,107
Other Sodium Compounds cwt.	42,502	43,551	25,948	31,047	Total "	11,289	14,563	51,189	44,225
Tartar, Cream of . . .	1,810	3,050	7,607	13,610	POTASSIUM COMPOUNDS				
Zinc Oxide tons	1,252	962	40,674	28,633	Chromate and Bi-chromate cwt.	2,119	1,902	3,936	3,465
All other Sorts . . . value	—	—	376,365	237,766	Nitrate (Salt-petre) . . "	1,272	1,310	2,593	2,697
DRUGS, MEDICINES, ETC.—					Other Sorts "	1,140	8,372	16,107	17,311
Quinine and Quinine Salts oz.	293,955	193,506	19,312	13,590	Total "	4,531	11,584	22,636	23,473
Bark Cinchona (Bark Peruvian, etc.) . . cwt.	42	1,955	200	10,149	SODIUM COMPOUNDS—				
Other Sorts value	—	—	143,928	165,474	Sodium Carbonate . . .	391,885	451,149	114,871	128,756
DYES AND DYESTUFFS, ETC.—					Caustic "	161,885	168,108	115,359	119,952
Intermediate Coal Tar Products cwt.	133	—	1,576	—	Chromate and Bi-chromate cwt.	3,351	1,785	4,813	2,461
Alizarine "	123	128	3,585	6,876	Sulphate, including Salt Cake cwt.	263,997	302,277	32,043	29,962
Indigo, Synthetic . . .	—	—	—	—	Other Sorts "	58,467	66,457	73,354	59,881
Other Sorts "	2,899	3,699	75,260	82,132	Total "	879,585	989,776	340,440	341,012
Cutch "	3,391	2,841	4,644	4,159	Zinc Oxide tons	100	112	4,499	3,954
Other dyeing extracts "	4,570	4,167	14,477	14,380	CHEMICAL MANUFACTURES, ETC., all other sorts				
Indigo, Natural . . . "	32	—	921	—	value	—	—	305,632	325,002
Extracts for Tanning . .	87,664	78,820	92,724	89,049	Total of Chemical Manufactures and Products . . value	—	—	1,301,710	1,491,197
PAINTERS' COLOURS AND MATERIALS—					DRUGS, MEDICINES, ETC.—				
Barytes, Ground, and Blanc Fixe cwt.	57,274	53,267	12,664	11,986	Quinine and Quinine Salts oz.	175,696	194,277	19,309	19,063
White Lead (dry) . . .	13,330	13,603	19,146	22,231	All other Sorts . . . value	—	—	256,239	259,390
All Other Sorts	97,464	99,310	125,847	140,233	Total "	—	—	275,548	278,453
Total of Chemicals, Drugs, Dyes, and Colours value	—	—	1,397,736	1,197,221	DYES AND DYESTUFFS—				
Exports					Products of Coal Tar, cwt.	7,000	11,949	57,825	86,070
CHEMICAL MANUFACTURES AND PRODUCTS—					Other Sorts "	14,966	8,091	12,271	10,363
Acid Sulphuric . . . cwt.	19,128	6,722	4,896	3,250	Total "	21,966	20,040	70,096	96,433
Acid Tartaric	1,637	1,703	10,712	11,571	PAINTERS' COLOURS AND MATERIALS—				
Ammonium Chloride (Muriate) tons	389	304	8,867	7,434	Barytes, ground, and Blanc Fixe cwt.	1,035	662	694	294
Ammonium Sulphate—To Spain and Canaries tons	11,074	8,761	102,851	81,312	White Lead (dry) . . .	4,657	3,432	8,017	6,808
„ Italy "	99	403	948	3,535	Paints and Colours in paste form cwt.	44,325	45,097	89,110	91,153
„ Dutch East Indies tons	341	306	3,356	2,944	Paints and Enamels Prepared cwt.	35,189	46,093	109,182	153,135
„ Japan "	10,753	11,677	104,119	111,245	All other Sorts	58,514	56,044	106,333	104,344
„ British West India Islands and British Guiana tons	379	541	3,725	5,126	Total cwt.	143,720	151,328	313,336	355,714
„ Other Countries . .	6,850	14,608	65,401	140,301	Total of Chemicals, Drugs, Dyes and Colours . . value	—	—	1,960,690	2,221,797
Total "	29,496	36,296	280,400	344,463					

Re-Exports					Quantities		Value	
Month ended October 31,		Month ended October 31,			Month ended October 31,	Month ended October 31,	Month ended October 31,	
1927.	1928.	1927.	1928.		1927.	1928.	1927.	1928.
		£	£				£	£
CHEMICAL MANUFACTURES AND PRODUCTS—				Bark Cinchona (Bark Peruvian, etc.) ..cwt.	512	616	3,631	5,308
Acid Tartaric	119	218	899	All Other Sorts ..value	—	—	39,988	36,055
Borax	10	808	10					
Coal Tar Products, value	—	—	394	DYES AND DYESTUFFS—				
Potassium Nitrate ..cwt.	91	26	146	Cutch	1,342	613	1,986	982
Sodium Compounds—			30	Other Dyeing Extracts cwt.	118	104	1,279	1,212
Nitrate	26	3,475	21	Indigo, Natural....	3	32	84	1,040
Tartar, Cream of ..	385	231	1,992	Extracts for Tanning,,	5,986	694	7,793	761
All other Sorts ..value	—	—	61,269	PAINTERS' COLOURS AND MATERIALS.....cwt.	1,396	1,796	4,444	5,212
DRUGS, MEDICINES, ETC.—				Total of Chemicals, Drugs, Dyes and Colours ..value	—	—	126,186	126,55
Quinine and Quinine Salts	18,840	21,656	1,860					

Oil and Colour Chemists' Association Meetings

Papers Before London and Manchester Sections

A MEETING of the Oil and Colour Chemists, Association was held at the Institute of Chemistry, London, on Thursday, November 8, Dr. J. J. Fox (president) in the chair, when Mr. A. T. Parsons read a paper on "Radium with Special Reference to Luminous Paints."

Mr. A. T. Parsons said that luminous paint had its origin in an observation made more than 300 years ago by an Italian shoemaker, who noticed that heavy spar which had been heated with charcoal possessed the remarkable property of glowing in the dark after it had been exposed to light. Later, other materials were discovered with similar properties and it was found that by suitably mixing the ingredients, products could be obtained which would shine with almost any desired colour. These phosphorescent powders consisted chiefly of blends of the sulphides of zinc and the alkali earth metals, but they were all subject to the limitation that their power of giving light depended upon their previous exposure to illumination, whilst the light given faded with comparative rapidity.

With the discovery of radium and the observation of its marked power of exciting fluorescence in many substances, the possibility of producing permanently luminous paints was recognised, and the idea was successfully applied. The necessity during the war for luminous gunsights and for luminous instruments of many kinds in the fighting services created a large demand for the new product, and in consequence a large amount of radium was used in its manufacture. The British Government bought about 18 grammes of radium to be applied to this purpose.

Preparation of Radioactive Luminous Paints

The distinctive ingredient of the modern permanent luminous paint, continued Mr. Parsons, was a radioactive substance, and the one at present most used is radium. As regards radioactive luminous paints, specifically to prepare a luminous compound it was necessary to mix a phosphorescent body with a suitable radioactive substance. As regards the first constituent, only zinc sulphide had found practical application, and either radium or mesothorium were used as the radio active substance.

A solution of zinc chloride was prepared from the metal or oxide, purified and then precipitated as sulphide, which was dried and ground. To the dried sulphide is added the desired impurity, which was nearly always copper, the proportion usually being between 1 part in 10,000 and 1 part in 50,000. The copper was added in the form of a dilute solution of copper sulphate. After this addition, the sulphide was again dried and ground. As an alternative, the copper might be added to the purified zinc solution and precipitated with it. The dried sulphide was next heated to $1,300^{\circ}$ to $1,400^{\circ}$ C., this being a particularly delicate part of the process demanding strict control of the conditions as well as of the temperature, and the duration of heating. The product consisted of small hexagonal crystals which were rubbed through a sieve without grinding.

Incorporation of Radioactive Substances

In incorporating either radium or mesothorium the tube was opened and the desired quantity mixed dry or added to the moistened sulphide in solution. Possibly the best procedure was to make up the sulphide into a liquid with water and alcohol, to add the radium salt dissolved in water, and then to precipitate it as sulphate in contact with the sulphide by adding gradually a slight excess of potassium or ammonium sulphate. The mixture was then dried at ordinary temperature, preferably in a vacuum over sulphuric acid. To apply the luminous powder, it was mixed to form a thick paste with a suitable transparent varnish. Mastic, crystal and copal varnish as well as those with a basis of cellulose nitrate had been used.

The freshly mixed compound did not immediately attain its maximum luminosity, but this increased gradually for a period usually between 10 and 20 days. After this the luminosity began to fall, at first gradually, then more rapidly and finally gradually again.

The high-grade paint used for Admiralty compasses contains approximately 0.2 mg. radium element per gramme, but the grades used on watches contained much less than this. All paint containing 0.05 mg. per gramme would be of quite high-grade, whilst the proportion was sometimes no larger than 0.01 mg. per gramme.

Finally, Mr. Parsons dealt with the recovery of radium from luminous paint, and at the same time expressed the view that mesothorium instead of radium should be used for such purposes as watch dials owing to the great value of radium in medicine and for the essential purposes of the fighting services. Moreover, mesothorium now sold at about £7 10s. per mg., as against £12 for radium, so that for the same brilliancy the cost of a mesothorium luminous paint would be only about 37 per cent. of that of a radium paint. In conclusion, Mr. Parsons described the method developed at the Government laboratory by Mr. Francis for the recovery of radium from decayed luminous paints, and indicated how the loss in the amount of radium recovery seldom exceeded 2 per cent., and was very often as low as 1 per cent.

Nitro-cellulose Finishes

At the Manchester Section of the Association, on Friday, November 9, Mr. Bertram Campbell, chief chemist to Nobel Chemical Finishes, of Stowmarket, read a paper on "Nitro-cellulose Finishes," Mr. T. H. Bridge, chairman of the Section, presiding.

The author said that nitrocellulose finishes were being used in steadily increasing quantities in many directions where formerly oleo-resinous paints and varnishes were employed. Some of these finishes were characterised by a high degree of resistance to the deteriorating influences of the weather, while others were poor in this respect. One of his main purposes was to deal with some of the considerations which affected the durability of nitrocellulose finishes so far as outside exposure was concerned.

Up to 1919 all lacquer products were based on nitrocellulose which in solution gave a relatively high viscosity. For that reason a single application of solution resulted in the deposition of very thin films, and in order to obtain films of satisfactory durability the application of about sixteen coats was necessary. Obviously it was desirable to produce lacquers with a more highly concentrated nitrocellulose content, and this was accomplished through the discovery of methods of reducing the viscosity of the nitrocellulose while still retaining film strength and durability and applying these methods to the manufacture of lacquers.

A number of methods of producing low-viscosity nitrocellulose had been mentioned in the chemical literature. These depended essentially upon the action of heat alone, heat in the presence of reagents at controlled alkalinity, or the action of ultra-violet light. Only the first two methods had found commercial application in the modern lacquer industry.

While durable nitrocellulose finishes were developed in the first place for the decoration and protection of sheet metal surfaces, equally durable finishes were now available where other physical properties were called for, for example, on rigid castings, on wood, and for the refinishing of leather cloth. The nitrocellulose finishes which were most resistant to outdoor conditions were pigmented products and consisted of nitrocellulose, resins, softening agents, solvents, diluents and pigments.

Water-wet nitrocellulose was unsuitable for the manufacture of nitrocellulose finishes, and the water must be displaced by some other medium, for example, industrial spirit or butyl alcohol, dehydration being carried out in either hydraulic presses or centrifugals.

Use of Resins

Dealing with resins, the use of which in finishes was desirable to give gloss, hardness, adhesion and body, and to render the film more impervious to moisture, Mr. Campbell said that, in general, resins did not add to the viscosity of the solution, and at the same time they usually cheapened the product. The selection of resins for any type of finish depended on the properties with which it was desired to endow the finish. Ester gum (rosin glyceryl ester) was the most universally used resin on account of its solubility, colour, low acidity, and attractive price. Dammar was used where good adhesion, gloss and pale colour were desired, and it was also considered more durable in nitrocellulose films exposed to the weather than was a resin of the ester gum type. Some of the natural fossil gums, chiefly kauri, Manila, and, to a limited extent, Congo, had found considerable use in certain types of nitrocellulose finishes. A large number of synthetic resins might be used with satisfactory results, notably those of the modified phenol-formaldehyde and glyptal types. In general, all resins, said the author, detracted from the actual durability of a nitrocellulose finish and were added mainly to give better gloss, hardness and build.

Finishes for leathercloth, wood and sheet metal surfaces called for a measure of elasticity greater than was possessed by nitrocellulose alone, and this property was conferred by softening agents such as the vegetable oils, and plasticisers such as the alkyl phthalates and aryl phosphates. The vegetable oils now being used advantageously, included castor and rapeseed oils, both raw and blown, and blown linseed oil. The following were mentioned as among the plasticisers available: Diethyl, dibutyl, and diamyl ortho-phthalates; triphenyl and tricresyl phosphates, camphor, ethyl acetanilide, ethyl abietate, butyl oxalate, hexalin oxalate, dibutyl tartrate, and triacetin. For finishes for outside exposure, dibutyl phthalate and tricresyl phosphate were the plasticisers of major importance.

Pigments

Mr. Campbell discussed at some length the marked effect of pigments on durability. Whereas a clear film of nitrocellulose was extremely sensitive to the ultra-violet rays of the sun's spectrum, and a clear film exposed for only a few days became so brittle that it would not withstand mild bending without cracking; if such a film were protected from the sun's rays by the use of opaque pigments almost indefinite resistance to sunlight would result. Each pigment, however, required to be studied separately and the ratio of pigment to clear vehicle was also important. If the pigment content was too high, failure by cracking might occur, and if this

did not happen, excessive chalking would result. If the content was too low failure by chalking would quickly result.

Referring to the question of solvents and diluents, the author said that materials such as ethyl acetate or acetone produced solutions of lower viscosity at the same concentration than their higher homologues. Fortunately, alcohols activated the solvent power of esters, and minimum viscosities with higher boiling acetates were possible through adjusted conditions of alcohols. Using a lacquer solvent combination was a complex mixture of low-boiling esters and aromatic hydrocarbons with high boiling esters and alcohols. The low-boiling esters served to reduce viscosity and increase solids, while the higher boiling solvents assisted in the flow of the sprayed finish and prevented blushing.

Society of Public Analysts

An ordinary meeting of the Society of Public Analysts was held in the Chemical Society's Rooms, Burlington House, London, on Wednesday, November 7, the president, Mr. Edward Hinks, being in the chair. Certificates were read for the first time in favour of:—E. H. Bunce, A.I.C., F. O'Brien M.Sc., F.I.C., W. M. Seaber, B.Sc., F.I.C. and J. G. Sherratt, B.Sc., F.I.C. Certificates were read for the second time in favour of:—C. W. Bayley, H. Brindle, B.Sc., A.I.C., W. G. Burgess, G. L. Clothier, H. I. Downes, M.Sc., A.I.C., A. W. Greenhill, M.Sc., A.R.C.Sc., A.I.C., D. R. Hayward, B.Sc., B. L. Khuller, M.Sc., A.I.C., J. D. Kidd, B.A., M.Sc., A.I.C., H. Drake Law, D.Sc., F.I.C. and S. J. Saint, B.Sc., A.I.C.

The following were elected members of the Society:—P. Bhargava, B.Sc., C. E. Gill and T. P. Hilditch, D.Sc., F.I.C.

Determination of Antimony

"The Determination of Small Quantities of Antimony in the Form of Stibine" was discussed by Mr. J. Grant. An improved form of apparatus of the electrolytic Marsh type was described, by the use of which antimony was completely and rapidly removed from its solution in 0.5N hydrochloric acid, in the form of stibine, by means of a swift stream of hydrogen bubbles impinging on the point of an inverted cone lead cathode. This ensured removal of the gas from the electrolytic cell before it was decomposed. The antimony in the deposit could be determined by comparison with standard stains or, with sufficient accuracy for most purposes, by a colorimetric method. Small quantities of antimony (10 to 0.001 milligramme) had thus been determined in alloys, ores, rubber, etc., in the presence of other metals.

Unsaponifiable Matter in Oils and Fats

Mr. E. L. Smith read a paper on "The Determination of Unsaponifiable Matter in Oils and Fats." It was shown that there were sources of error in all the methods previously described. In most of those the extraction of unsaponifiable matter was incomplete (80 to 98 per cent.), and hydrolysis of dissolved soap while washing the ethereal extract might result in fatty acid being weighed with the unsaponifiable matter. Two methods in which those errors were avoided were described, the first of which gave results accurate to within 1 per cent. of the amount of unsaponifiable matter present, whilst the second method, which was less tedious, gave results which, though a little less accurate, were more trustworthy than those of any previous method.

Composition of Irish Butter

Mr. P. Arup, in a communication on "The Composition of Irish Butter," said that three quantities of butter fat were separated by chilling, so as to obtain a fraction liquid at 10° C. as the lower limit and one crystallising at 37° C. as the upper extreme. The Reichert-Meissl, Kirschner, Polenske and iodine values of the different fractions of glycerides were determined.

Volumetric Determination of Mercury

"The Volumetric Determination of Mercury" was dealt with by H. B. Dunncliff, and H. D. Suri. The method described was based on the reduction of mercuric chloride solution by means of stannous chloride in presence of sodium tartrate in an atmosphere of carbon dioxide. The supernatant liquid was filtered from the separated mercury through a special filter into a burette, and the excess of stannous chloride was titrated against ferric alum solution or standard iodine solution.

Chemicals at the British Industries Fair, 1929

A Representative Exhibition

THE British Industries Fair affords an unrivalled opportunity by which the new developments in British industries may be readily ascertained. Though it is true that chemicals are difficult to exhibit in an attractive manner, nevertheless the chemical section of the Fair will afford a remarkable demonstration of the steady progress which is being made by the chemical industry of the country. The Chemical Section will again be housed at the White City, London, in Hall K, occupying the same position in the hall next the Food Section, as it did last year. With it the exhibits of British Chemical Plant Manufacturers may again be associated, and this grouping will assist the visitor who is interested in the chemical industry, as it will give him a unique opportunity of inspecting, in the same hall, a wide range of chemical products from all branches of the industry, as well as up-to-date types of plant used in the manufacture of these substances. The British Road Tar Association exhibit will also be in the chemical section.

The plans which are now being made for the chemical exhibits, under the auspices of the Association of British Chemical Manufacturers, afford ample evidence that this section of the Fair will well repay a visit by those who have a direct commercial interest in the products of the chemical industry. The Association of British Chemical Manufacturers will have an office in the Chemical Section to deal with any inquiries that visitors may wish to make; the main office of the Association at 166, Piccadilly, London, W.1, can also be consulted at any time, and will be pleased to forward full information on any point.

Since chemical products are entering more and more into every branch of human activity, representatives of probably every industry will find something new and attractive. At the same time, the ordinary layman will find much to interest him, and will see convincing proof of the wonderful progress which is being made in the development of new branches of chemistry, and in the application of chemical science to human needs.

The chemical exhibits will cover all branches of the chemical industry; that is to say, heavy chemicals, fertilisers, explosives, coal tar derivatives, fine chemicals of all kinds, such as medicinal, photographic, analytical and perfumery, and dyestuffs. In every section it will be found that products have been improved in quality and reduced in price. In addition, the range has been extended; many interesting substances which were formerly only available as laboratory specimens are now being produced on a commercial scale, while well-known products made by synthetic methods unthought of only a few years ago, will be shown. In short, the exhibition will be a convincing demonstration of the fact that the British chemical industry, by working along scientific lines, is in the forefront with all new developments of theoretical and technical chemistry.

Heavy Chemicals and Fertilisers

The heavy chemical industry has long been pre-eminent, and its products have a world-wide use and reputation. Even in this old and well-established field, advances will be found in the shape of better and cheaper products. Acids of any strength and purity, according to the particular use to which they are to be put, are now so familiar to everyone that further description is superfluous. It is sufficient to say that the acids and alkalis available will meet all the requirements of the numerous industries dependent upon them, among which, to mention only a few, soap, glass, paper, artificial silk, iron, steel, galvanising and tin plating occupy a prominent position. Bleaching materials of all kinds, and for a variety of uses such as textiles, soap, sugar, glue, etc., will also be available, and special brands and packages for tropical use will be a noteworthy feature.

Associated with the heavy chemical industry is the fertiliser industry, which is placing at the disposal of the agriculturist a variety of synthetic manures devised to enable him to obtain the maximum fertility from his land, and to render him more and more independent of overseas supplies of natural materials.

Coal and Coal Tar Products

The products which the gasworks and the tar distilleries are now able to recover from coal will be well represented. These are used very largely as fertilisers, motor fuels, disinfectants, etc., or as the raw materials for the manufacture of fine chemicals, explosives, dyes and insecticides. In this connection, mention must be made of the progressive work now in hand on the low temperature carbonisation of coal, from which a range of entirely new products may be expected, which may play an important part in the chemical industry in the near future. Similarly, experimental work on the production of liquid fuels from coal and tar, by hydrogenation, promises to lead to developments of first-class importance.

Medicinal and Pharmaceutical Chemicals

The fine chemical industry will be specially well represented and will demonstrate the remarkable progress which it has been able to make, due to the stimulus provided by the Safeguarding of Industries Act. Among the medicinal and pharmaceutical chemicals will be found all the latest products which medical research has proved to be of important therapeutic value. These substances are made under carefully controlled conditions, and close Government supervision, which ensure that they are of the highest quality and in every way suited for the important purposes for which they are intended, viz., the relief of human suffering and the promotion of human wellbeing and happiness. The exhibition will include not only all the well-known, but also the latest, types of anaesthetics, antiseptics, alkaloids, synthetic remedies, inorganic or mineral salts used for medicinal purposes, and biochemical products such as gland extracts and vitamin substances, prepared in some cases both from natural sources and by synthetic means. These will be exhibited in bottles, tubes, capsules, tablets and other packages suitable and ready for use in any form of treatment and in any part of the world.

Photographic Chemicals

There will be an interesting display of photographic materials of all kinds used in sensitising, developing, toning, fixing, etc. The range available will meet the needs of the process engraver, the radiologist, the film producer, and the professional and amateur photographer.

Analytical and Research Chemicals

Laboratory and analytical chemicals of all kinds are now produced in this country, and can compete with the best products of any other country. This group includes the reagents used in research, analysis and teaching, and the microscopic dyes and stains necessary for medical investigations.

Perfumery Chemicals and Essential Oils

Perfumery and fine chemicals used for flavouring purposes will be well represented, and will include numerous synthetic essences and perfumes. The technique of compounding different essences into the highest class of perfumes has now been developed to a fine art in this country, and perfumes to any formula can be produced. The essences for flavouring are specially prepared to comply with the statutory regulations as to purity which may exist in any country for which they are purchased.

Rare Earths

Among other fine chemicals will be found many salts of precious metals and rare earths, of which perhaps the most important are the thorium compounds now used so largely in the electric filament lamp, and the gas mantle industries. There will also be a wide range of other rare earth compounds and radio active substances used in medicine, and in the production of electro-arc carbons, certain varieties of glass, and pyrophoric alloys. A noteworthy feature will be mesothorium, now employed medicinally to a large extent, and in the manufacture of luminous compounds in place of radium, thus providing an all-British substitute for radium, of which the supplies in the British Empire are very limited.

Solvents

An important and recent development in which this country has played, and is still playing, a prominent part, is the production of new and improved solvents and plasticisers

for fats, gums, oils, etc., for use in the perfumery, soap, acquer, varnish, laundry and dry-cleaning trades.

Dyes, Intermediates and Allied Products

The British dye industry will again be able to demonstrate the great progress it has made, thanks to the assistance and encouragement it has received from the Dyestuffs (Import Regulation) Act. The industry not only produces all the more important colours of as high a quality as is obtainable from its most active competitors, but is also able to exhibit a range of entirely new colours with new uses and improved ageing properties. In particular, the industry has been responsible in the last year or so for a rapid development in the manufacture of the very fast and important vat colours, and of dyes especially suited for the different types of artificial silk which are now rapidly displacing the old standard fabrics. In addition, there will be exhibited a wide range and variety of colours specially adapted for use in leather, boot and floor polishes, soap, inks, varnishes, rubber, films, lakes, buttons, ivory, bath salts, and a host of other purposes too numerous to mention, while samples showing the application of the colours will be on view. A feature of particular interest is a special range of harmless colouring matters for all classes of confectionery and foods.

The dye and fine chemical industries call for an extensive range of intermediates, all of which can be produced by the British manufacturer. Closely associated with the dye industry is the development of organic accelerators, which are used to shorten the time required for the vulcanisation or curing of rubber, and of anti-oxidants.

Miscellaneous Chemicals

In addition to the foregoing there will be many other products not falling strictly within any of the above classes, such as stone preservatives, chemicals for electro-plating and process engraving, and for the application of non-tarnishing or corroding coatings to otherwise corrodible metals, and others too numerous to mention.

The interest of the exhibits will be enhanced by the demonstration of certain processes, working models of plants, and probably by a cinematograph display.

Viscose and Direct Cotton Dyes

Correction of Uneven Dyeing

[COMMUNICATED BY COURTAULDS, LTD.]

VISCOSE dyed with direct cotton dyestuffs which shows unevenness in the form of weft bars, "stripey" warps or light and dark skeins, may be considerably improved in the majority of cases by the following method of after-treatment, covering which a provisional application for patent protection has been filed.

Work for 30 minutes at 90° C. (195° F.), in a bath containing 1 lb. of β -naphthol and 1 lb. of common salt per 10 gallons of water; the β -naphthol does not dissolve completely but floats in the water in the form of fine crystals. Laboratory investigation confirmed by practical trials has shown that the following three factors play controlling parts in the successful application of this corrective after-treatment:—

- (1) Strength of Solution.
- (2) Temperature of Treatment.
- (3) Duration of Treatment.

(1) Strength of Solution.

The strength of solution which gives the most favourable results on the large scale has proved to be 1 per cent. solutions of β -naphthol and common salt: weaker or stronger solutions of either or both may be required in special instances, but the above strength will be found to be suitable in most cases.

(2) Temperature of Treatment.

It is necessary to maintain the temperature at 90° C. (195° F.) or higher still if working conditions permit; the lower the temperature is allowed to fall, the poorer is the correction. This point must be carefully watched or disappointing results will be obtained, especially when handling yarn. It is often overlooked that if cold yarn is entered into a bath at 90° C. (195° F.), it quickly lowers the temperature of the bath to 70° C. (160° F.). It is advisable to fit the bath used for this treatment with a closed steam coil, so that the temperature

may be maintained without the risk of the material coming into contact with live steam.

(3) Duration of Treatment.

Laboratory tests have shown that correction does not take place under 15 minutes working, so treatment on the large scale should be continued for 30 minutes to ensure the most favourable results. If the temperature is not maintained at 90° C. (195° F.) or higher, the time of working must be prolonged beyond 30 minutes to compensate for the less effective correction at lower temperatures.

Following the correction bath the material must be thoroughly washed, preferably in warm water or a soap bath, in order to remove the β -naphthol. β -naphthol left on the material turns brown on exposure, and so may mislead one into thinking that the dyestuff has faded. In making up the β -naphthol bath, a black scum has been noticed to form occasionally on the surface; this must be carefully skimmed off, because if allowed to attach itself to the viscose it has proved very difficult to remove. Drawing a sheet of filter paper along the surface of the liquor is a simple and effective way of removing it.

General Details

The β -naphthol may be brought into complete solution by means of caustic alkali without altering the correcting power of the treatment, but there is a risk of side reactions between the alkali and the dyestuff or viscose or both which might effect the shade or strength of the material.

It is equally possible actually to dye in a 1 per cent. solution of β -naphthol and common salt and get favourable results, but it is our experience after working both ways on the large scale that the after-treatment gives the better results. The latter method has the advantage that the correction bath may be maintained and suitably strengthened for succeeding batches, whereas to run away each correction bath after use would be found to be wasteful and needlessly expensive.

It is to be understood that it is not claimed for this process that it will give perfect corrections, but that it does effect a marked improvement in most cases. It has also the advantage that it enables the freer use of uneven-dyeing direct cotton dyestuffs where their use is desirable to get the required fastness. For example, it has been found the use of Benzo Fast Blue 8GL and Chlorantine Fast Yellow 4GL in combination for a brilliant green fast to light was impossible before this correction process was introduced when dyed by normal methods. Benzo Fast Grey BL gives very uneven results, which may be made acceptable by this correction process. Experience has also shown that some uneven dyeing dyestuffs do not yield results by this correction process, for example, Chlorazol Fast Orange AG and Benzo Fast Brown GL.

Finally, this process may not be applied to fabrics containing acetate yarn, since the β -naphthol bath completely dissolves the acetate yarn. It is also not beneficial for shades dyed with other dyestuffs than direct cotton dyestuffs.

Insulators from Natural Substances

Talc, Basalt, Etc.

WHEN naturally-occurring substances possess the necessary characteristics for the production of insulators, it is reasonable to expect that manufacturers will try to make use of such substances in preference to the highly complex porcelain bodies commonly employed.

Talc or steatite is a case in point. As obtained from certain quarters this mineral bears a formula almost similar to that of a porcelain, being an alumina silicate, but having a magnesia base instead of a complex one composed of potash or soda and lime. Talc or steatite insulators have been known to possess great dielectric strength. Risk of distortion in a highly vitrified body is reduced to the minimum when talc or steatite is introduced. The toughness and viscosity of the fused steatite imparts toughness to the body rendering it less liable to lose its shape. The use of magnesium silicates holds an additional advantage in that it is very resistant to sudden changes of temperature. The following proportions have been found outstandingly successful:—86 parts of talc and 14 parts of gelatinous precipitated magnesium silicate. On account of its elasticity, this mixture may be pressed into the necessary moulds with facility whilst at the same time avoiding the drawbacks attendant on true plasticity.

Institute London Section

Annual Meeting and Smoking Concert

THE annual general meeting of the London and South Eastern Counties Section of the Institute of Chemistry will be held at 8 p.m. on Wednesday, November 21. The business to be dealt with includes the minutes of last annual general meeting; the annual report of the treasurer; the annual report of the committee; and the election of officers and members of committee.

In accordance with the rules, the committee have nominated officers as follows:—chairman, Professor J. C. Drummond; vice-chairman, Sir Robert Robertson and Mr. G. S. W. Marlow; hon. treasurer, Mr. A. J. Chapman; hon. secretary, Mr. E. B. Hughes. The following being eligible, have been renominated by the committee, as members of committee: Fellows, Dr. L. E. Campbell, Mr. N. Evers, Mr. S. H. Greenwood, Dr. G. A. R. Kon, Dr. L. H. Lampitt, and Mr. H. Shankster; Associates, Mr. A. W. Barrett, Mr. S. G. Kendrick, and Mr. C. W. Spiers. The following have been nominated by the section and committee to fill the vacancies occurring on the committee: Fellows, Mr. L. K. Boseley, Mr. T. H. Fairbrother, Mr. G. N. Grinling, Mr. J. R. Nicholls, Mr. W. H. Simmons, and Mr. W. O. R. Wynn. Associates, Mr. R. J. Atkinson, Mr. J. J. V. Backes, and Miss K. Culharte. As the total number of nominations from the section and committee, both of Fellows and Associates, does not exceed the required number, no ballot will be necessary.

The business of the meeting will be followed by a smoking concert which will commence between 8.15 p.m. and 8.30 p.m. The secretary appeals to members who are willing to contribute to the programme to notify him as soon as possible. Offers of assistance will be greatly appreciated.

The committee desire to learn the opinion of the section with regard to the desirability of continuing or discontinuing the annual dance. During the past four years attendance at these dances have gradually fallen off, and each year has thereby resulted in a deficit. It is obvious that if the annual dance, which is undoubtedly a desirable social function, should not be discontinued, much more support must be forthcoming. The committee have therefore circulated a questionnaire regarding the matter.

Scottish Imperial Chemical Industries

AN important announcement (says the London correspondent of the *Dundee Courier*) will be made on an early date regarding the future administration of a number of Scottish firms engaged in the manufacture of chemicals. Imperial Chemical Industries, Ltd. have acquired a controlling interest in these firms. Dundee, Leith, Carnoustie and Aberdeen are said to be affected by the change, and the combined group will be known as Scottish Imperial Chemical Industries, Ltd., with headquarters at Leith. The new regime will operate as from the beginning of next year. Inquiry at the headquarters of I.C.I. failed to elicit confirmation of this report, but it is thought that the developments referred to are in connection with agricultural chemicals.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

121. (*Repairing leaks in slab slate tanks for photo-developing*).—"We have some slab slate tanks for photo-developing (using metol-quinol, sodium hyposulphite, etc.). The joints are made of red and white lead putty, and holes are stopped with the same material. The water tanks are O.K., but the red lead of the metol-quinol tank is softening and liquid is leaking through the stopped holes. The hypo tank seams and hole stoppings are also softening. I presume that red lead putty will not stand up to photo chemicals. Is this so? Will magnesium chloride and oxide cement stand up to it? Will ordinary Portland cement do, or some bitumen or rubber paste?"

122. (*Sodium Percarbonate*).—Thenames of manufacturers are required.

Chemical Matters in Parliament

Dead Sea Salts Concession

Colonel Howard-Bury (House of Commons, November 12) asked the Secretary of State for the Colonies whether during the last three months there had been any changes in the position with regard to the Dead Sea Salts Concession?

Mr. Amery replied that he had been in correspondence with the Palestine Government throughout the period and had received in the last few weeks a report from them giving their views on all the points of detail that were still outstanding. This report was now under consideration and he hoped shortly to come to a decision in regard to the application which was accepted in principle some time back.

Lt.-Col. Sir F. Hall asked whether that meant that there was no chance of a British firm having an opportunity of working this concession.

Mr. Amery stated that it did not mean that. First of all they had to settle the actual details. Until they were settled the application was not final. He was not sure that he would accept the view that the applicants in this case were not to a substantial extent British.

In reply to Mr. Erskine Mr. Amery stated that the concession was purely speculative.

Mr. Thurtle asked whether the House might take it that the recent change in the directorate of Imperial Chemical Industries, Ltd., would not cause any change in the Government's policy in this matter.

Mr. Amery: Yes, Sir.

Technical Staffs in Beet Sugar Factories

In course of a written answer to Mr. F. Mitchell (House of Commons, November 12) Mr. Guinness stated that as regards the higher technical staff the total number employed in British beet sugar factories was 443, of whom 372 were British and 71 other than British. The proportion by nationality of the higher technical staff was British 84 per cent., American 10, Dutch 4, Czechoslovak, 1, French, German, Hungarian and Italian together 1.

Chemical Works Explosion

In reply to Lt.-Commander Kenworthy (House of Commons, November 8), the Home Secretary stated that he had directed, under Section 66 of the Explosives Act, 1875, an inquiry to be made by a Government Inspector into the cause of the accident at Great Oakley, Essex, last month.

Turner Process of Coal Treatment

In reply to questions by Captain Fanshawe and Mr. Johnston (House of Commons, November 13), Commodore King said that the Fuel Research Board were aware of the nature of the Turner process, and the plant had been visited by the Board's representatives on several occasions. A report on a low-temperature carbonisation plant could not be issued by the Department of Scientific and Industrial Research after mere inspection, but only after the plant had been tested under the conditions specified. The Department of Scientific and Industrial Research was, and had always been, willing to make a test and issue a report on Mr. Turner's plant, but no application for a test had been received from Mr. Turner.

Nobel Chemistry Prize Awards

THE award of the Nobel Prizes for chemistry for the past two years is announced as follows: The 1927 prize to Professor Heinrichs Wieland, of Munich, for his investigations into gall acids; and the 1928 prize to Professor Adolph Windaus, of Göttingen, for his investigations regarding the constitution of the sterols and their relation to the vitamins.

Appointments Vacant

ASSISTANT to the Manchester City Public Analyst.—The Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester. December 1.

YOUNG Chemist wanted for Spain. For further details see our advertisement columns, p.xx.

From Week to Week

A RADIUM-CONTAINING well is said to have been discovered at Maple, Ontario.

SIR WILLIAM ALEXANDER arrived in England by the *Mauretania* on Tuesday, after an extended visit to the United States.

THE SUBSCRIPTION list in connection with the issue of 800,000 ordinary 2s. shares in Guardax Safety Glass, Ltd., was opened on Friday.

AN EMPIRE TRADE UNIT will be the subject of an address by Lord Melchett at a mass meeting to be held on December 5, in Manchester, under the auspices of the Empire Industries Association.

ARTIFICIAL SILK NEWS.—Important negotiations which will result in the formation of another powerful group are stated to be in progress between the Tubize Artificial Silk Companies, the Soie Viscose, and the Soie d'Obourg.

MR. G. BELTRAMI, director of the Lazard-Godchaux Co., Ltd., 422, Strand, London, has been appointed sole agent for United Kingdom and Ireland for one of the largest cream of tartar factories in Italy, Tomasso Benassi and Co., Modena.

MR. SANTIAGO SABIONCELLO, on Wednesday, November 7, bought from the Chilean Government, for the Alianza Co., Ltd., the nitrate grounds called "Cachango," containing over two million metric quintals of commercial nitrate in caliche of 28 per cent.

RUMOURS were current in Manchester on Tuesday that the Bradford Dyers' Association, Ltd., were negotiating for the acquisition of Samuel Barlow and Co., bleachers, dyers and calico printers, of Stokehill Works, Castleton. No official confirmation was forthcoming.

AN INNOVATION on the social side of the Oil and Colour Chemists' Association is the announcement of a social evening and dance, which is to be held at Ye Mecca, Ludgate Hill, London, on November 30. Further details and tickets may be obtained from the General Secretary at 30, Russell Square, London.

UNIVERSITY NEWS.—*Cambridge*: A pension of £380 a year has been granted to Mr. C. T. Heycock, F.R.S., of King's College, Goldsmiths' Reader in Metallurgy, upon his resignation.—*London*: The D.Sc. degree in chemistry has been conferred upon Mr. L. L. Bircumshaw, Mr. B. M. Cavanagh, and Dr. F. H. Constable.

THE STANDING COMMITTEE appointed by the Board of Trade will on Monday and Tuesday resume the inquiry as to whether certain classes of imported rubber goods should bear an indication of origin. Rubber in sheets and piping and tubing are included in the list to be considered.

BEET SUGAR NEWS.—Mr. J. H. Lane, analyst to the Sugar Association of London, described modern improvements in the methods used in beet sugar manufacture, at a meeting at Birmingham on Tuesday of the Society of Chemical Industry. He described recent attempts by Owen and de Vecchis at drying the beet, and said that such modern processes would enable the factory to work all the year round, thus reducing the cost of manufacture.

EXTENSIVELY CIRCULATED reports in the Bridgend area of South Wales credit Guest, Keen and Nettlefolds, Ltd., with the intention of erecting by-product plant in this area early in the new year. Although there is no confirmation of the reports, writes a Cardiff correspondent, there has been no denial of the statements made in local newspapers. One report states the company intend to erect immediately plant to deal with 500 tons of coal daily.

THE DEPARTMENT OF OVERSEAS TRADE announces that Mr. W. F. Vaughan Scott, recently Commercial Secretary at Santiago, Chile, is at present in this country pending his transfer to another post. During the present month Mr. Vaughan Scott will be in attendance at the Department, where he will be pleased to interview firms interested in the exports of British goods to Chile. Firms desiring interviews should apply at once to the Comptroller-General, Department of Overseas Trade, 35, Old Queen Street, London, quoting the reference 14157/28.

THE ANNUAL REPORT of the British Cast Iron Research Association for the year ending June 30, 1928, has just been issued. The membership is increasing, and now totals 298. Research work is proceeding upon the following lines: corrosion-resisting cast iron; moulding sands; heat-resisting irons; malleable cast iron; light castings iron; alloy cast iron; cupola tests; influence of manganese; methods of analysis; testing of cast iron and design of structures. The decision of the Government to extend the offer of grant on the £1 for £1 basis to the Research Associations for five, and possibly ten, years beyond 1931, ensures continuity for the Cast Iron Research Association.

THE DIRECTORS of the Canadian Salt Co. have received an offer from Canadian Industries, Ltd. (in which Imperial Chemical Industries, Ltd., is interested), to purchase the undertaking as a going concern as from September 1 last, at a price which will give holders \$225 per common share, or alternatively to purchase all the outstanding \$100 common shares of the Canadian Salt Co. at a price of \$250 per share. Canadian Industries, Ltd., manufactures explosives, paints, varnishes and celluloid. It is believed to have been preparing an extension of its activities in the chemical field in Canada, and is thought to have made the offer to the Canadian Salt Co. rather than to enter into competition.

MR. W. H. GILES, a director of the Derby Oxide and Colour Co., Ltd., has been elected Mayor of Burton.

LORD MELCHETT was invested on Saturday, November 10, with the Honorary Doctorate of the University of Paris (Sorbonne).

MR. S. S. BOJESSEN has been appointed to take charge of the sales and development department of the Non-Inflammable Film Co., Ltd.

THE SALE as a going concern, by private treaty, of a well-known engineering and boiler-making business, with special connections with chemical and allied trades, is advertised on p. xx.

LORD BIRKENHEAD, who recently joined the board of Imperial Chemical Industries, Ltd., has also joined the boards of the Johannesburg Consolidated Investment Co., Ltd., and Tate and Lyle, Ltd.

PROFESSOR J. ARTHUR THOMPSON will deliver the fourth annual Norman Lockyer lecture of the British Science Guild, on "The Culture Value of Natural History," in the Goldsmith's Hall, London, on November 28.

NEGOTIATIONS are in progress for the amalgamation of Bolckow, Vaughan and Co., Ltd., of Middlesbrough, and another company with like interests.

RECENT WILLS INCLUDE Mr. A. A. Watt, Grantham, a director of the Distillers Co., Ltd., £904,614 (net personalty £889,139).—Mr. J. Carmichael, Oadby, director of the British Enka Artificial Silk Co., £159,252 (net personalty £83,847.)

MISS EDITH GWENDOLYNE FELL, B.Sc., of Bradford, has taken up duties as assistant chemist at the Government laboratory, London, to which she was recently appointed. She was formerly engaged on research work at Bradford Technical College.

A TRANSLATION of the new Law of Hydrocarbons and other Combustible Minerals, passed during the last Session of the Venezuelan Legislature, may now be seen at the office of the Petroleum Department, Board of Trade, Great George Street, London, S.W. 1.

ALUMINIUM TANK WAGONS and containers are being used by the Niacet Chemical Corporation, of Niagara Falls, for the transport of glacial acetic acid. The company manufactures two grades of acetic acid, 99-99.6 per cent., and 99.7-99.9 per cent. strength respectively.

A GYPSUM INSTITUTE has been formed in the United States by gypsum manufacturers. The headquarters office and traffic department are situated at 110, West 40th Street, New York City, and the president is James Leenhouts, vice-president and general manager of the Grand Rapids Plaster Co.

DEPOSITS OF IRON OCHRE, roughly estimated at 50,000 tons, have been discovered near Makwai Lake, north of St. Walburg, on the Turtleford Branch of the Canadian National Railways. Mr. W. H. Hastings, the provincial mining engineer, is stated to have made an inspection of the deposits and to have reported the mineral to be very uniform in texture and colour.

DR. W. E. GIBBS, Ramsay Professor of Chemical Engineering at University College, London, will deliver his inaugural lecture on December 3, at 5.15 p.m., taking as his subject "Chemical Engineering Education and Research in Great Britain." Sir Robert Waley Cohen will occupy the chair. Tickets for the lecture may be obtained on application to the secretary of the college.

FURTHER IMPRESSIONS of the recent chemical tour through Canada and the United States are to be given at the Chemical Industry Club on Monday evening next in a series of short addresses by Messrs. C. J. Goodwin, F. A. Greene, F. E. Hamer, J. M. Leonard, P. Parrish and G. S. Whitham. On Wednesday, November 28, at an informal meeting of the London Section of the Society of Chemical Industry, Mr. J. M. Leonard will exhibit his film of the tour.

THE ASSETS of the Wilga Proprietary Coal Co., Western Australia, have been sold to Wilga Coal-Mining Carbonisation (W.A.), which proposes to extract oil and obtain smokeless pulverised fuel from coal by the Dvorkovitz process, the English rights of which are owned by the Motor Fuel Proprietary, Ltd. Some years ago it was estimated that the quantity of coal spread over an area of 24 miles was 200,000,000 tons. The company has a nominal capital of £250,000.

TO THE NOVEMBER NUMBER of *The Perculator*, the journal of the New York Chemists' Club, Dr. Ellwood Hendrik contributes an entertaining character sketch of Dr. Leo H. Baekeland. The latter was born at Ghent, Belgium, and as an example of his early taste for chemistry it is stated that as a boy he put silver nitrate into the Holy Water basins in the Cathedral, and caused mysterious black spots to appear on the faces of the worshippers. His town residence is in Yonkers, a suburb of New York; his country residence, Coconut Grove, Florida, was formerly part of the estate of W. T. Bryan.

Obituary

PROFESSOR JAN ZAWIDZKI, of the department of inorganic chemistry of the Warsaw Polytechnic, aged 62.

MR. R. W. MATTHEW, C.M.G., director of the Trades, Empire and Economic Division of the Department of Overseas Trade, on November 8. Mr. Matthew, who was only forty-nine years of age, joined the staff of the Department of Overseas Trade in December, 1917, after a successful career at the Board of Trade, where he had served as private secretary to four successive Presidents, Mr. Sydney Buxton (Lord Buxton), Mr. John Burns, Mr. Runciman, and Sir Albert Stanley (Lord Ashfield).

References to Current Literature

British

- ADSORPTION.**—The sorption of carbon tetrachloride at low pressures by activated charcoals. I. Apparatus and Method. R. Chaplin. *Proc. Roy. Soc. A.*, November 1, pp. 344-358.
- COLLOIDS.**—The formation of Liesegang rings as a periodic coagulation phenomenon. E. S. Hedges and R. V. Henley. *J. Chem. Soc.*, October, pp. 2714-2726.
- ESSENTIAL OILS.**—The sesquiterpene alcohol of the oil of *Eucalyptus nova-angelica*. L. H. Briggs and W. F. Short. *J.S.C.I.*, November 2, pp. 323-324T. It is shown that the sesquiterpene alcohol in question is probably endesmol.
- The essential oil of *Phebalium nudum*. C. B. Radcliffe and W. F. Short. *J.S.C.I.*, November 2, p. 324T.
- GENERAL.**—The reaction between nitrous acid and hydrogen sulphide. L. S. Bagster. *J. Chem. Soc.*, October, pp. 2631-2643.
- Studies in the dissolved oxygen absorption test.—III. E. A. Cooper and S. D. Nicholas. *J.S.C.I.*, November 2, pp. 320-322T.
- ORGANIC.**—A synthesis of behenolic acid. R. Bhattacharya, S. R. Saletore, and J. L. Simonsen. *J. Chem. Soc.*, October, pp. 2678-2681.
- The 3-halogeno-2-, -4-, and -6-aminophenols. H. H. Hodgson and A. Kershaw. *J. Chem. Soc.*, October, pp. 2703-2705.
- The catalytic production of polynuclear compounds. I. G. R. Clemo and R. Spence. *J. Chem. Soc.*, October, pp. 2811-2819.
- Higher hydrocarbons from methane. H. M. Stanley and A. W. Nash. *Nature*, November 10, p. 725.
- The action of sulphuric acid on olefins, etc. W. R. Ormandy and E. C. Craven. *J.S.C.I.*, November 2, pp. 317-320T.
- A note on West Australian sandalwood oil. K. Venkatesaiya. and H. E. Watson. *J.S.C.I.*, November 2, pp. 322-323T.

United States

- ARTIFICIAL LEATHER.**—The manufacture and dyeing of artificial leather. A. J. Hanley. *Amer. Dyestuff Reporter*, October 15, pp. 656-662.
- COLLOIDS.**—The salting out of gelatin into two liquid layers with sodium chloride and other salts. J. W. McBain and F. Kellogg. *Journal General Physiology*, September 20, pp. 1-15. The conditions under which gelatin may be salted out into two liquid layers at 35° have been studied. In the case of sodium chloride as salting-out agent, the phase rule applies to quaternary system gelatin-sodium chloride-hydrogen ion-water. Soaps and gelatin are found to be similar in their behaviour.
- TEXTILES.**—Mercerisation of cotton with sulphuric acid. W. B. Sellars and F. C. Vilbrandt. *Amer. Dyestuff Reporter*, October 15, pp. 645-649; October 29, pp. 685-693. Sulphuric acid of 62.5 per cent. concentration shows a maximum action on cotton. A mercerised product is obtained by using concentrations of 60-65 per cent. if tension is applied during immersion. The period of immersion should be one quarter to two minutes, at 0-30° C.
- Peroxides for textile bleaching. Their past, present, and probable. H. G. Smolens. *Amer. Dyestuff Reporter*, October 15, pp. 672-674, 678. Peroxide bleach in the United States; Pietzsch and Weisenstein processes; advances in the art of bleaching, the cost question.

German

- ANALYSIS.**—The micro-titration of iodine. A. Sturm. *Biochemische Zeitschrift*, Vol. 200, Parts 1-6, September 30, pp. 273-279.
- Methods of determining fats. G. Rosenfeld. *Biochemische Zeitschrift*, Vol. 200, Parts 1-6, September 30, pp. 280-288.

A rapid method for the determination of selenium. E. Benesch. *Chemiker-Zeitung*, November 10, pp. 878-879.

The determination of fats in cocoa products. A. Heiduschka and F. Muth. *Chemiker-Zeitung*, November 10, p. 879.

The Berlin blue and Turnbull's blue reactions. L. Szebellédy. *Zeitschrift anal. Chem.*, Vol. 75, Parts 5, pp. 165-167.

ANALYSIS, ORGANIC.—The determination of novocaine hydrochloride and codeine hydrochloride in the presence of one another. E. Schulek and G. Vastagh. *Archiv der Pharmazie*, October, pp. 452-455.

The detection of copper in the presence of iron. L. Szebellédy. *Zeitschrift anal. Chem.*, Vol. 75, Part 5, pp. 167-168.

COLLOIDS.—The simplest silicic acids; with some remarks on aluminium hydroxides. R. Willstätter, H. Kraut, and K. Lobinger. *Berichte*, November 7, pp. 2280-2293.

GENERAL.—Pore-size and mode of action of the Berkefeld filter. H. Hoek. *Chemische Fabrik*, November 7, pp. 645-646.

Compounds of 2:3-dihydroxynaphthalene with trivalent iron, with aluminium, and with arsenic acid. R. Weinland and H. Seuffert. *Archiv der Pharmazie*, October, pp. 455-464.

The conditions for the aeration of fermentation vats in the yeast industry or for the aeration of liquids in general. E. G. Stich. *Chemiker-Zeitung*, November 7, pp. 865-866.

ORGANIC.—Condensation products of pyrrol with aliphatic ketones. T. Sabalitschka and H. Haase. *Archiv der Pharmazie*, October, pp. 484-492.

Contribution to the knowledge of glycerides of fatty acids. A. Heiduschka and H. Schuster. *Journal praktische Chem.*, Vol. 120, Parts 6-7, pp. 145-159.

The reduction of aromatic mono- and poly-nitrocompounds. K. Brand and A. Modersohn. *Journal praktische Chem.*, Vol. 120, Parts 6-7, pp. 160-176.

The chlorination of naphthalene in benzene solution. J. Trautenberg and E. Wasserman. *Journal praktische Chem.*, Vol. 120, Parts 6-7, pp. 177-178.

An 85 per cent. yield of α -chloronaphthalene is obtained by chlorinating naphthalene suspended in benzene in the cold, using iron filings as catalyst.

The nitration of phenol. K. Beaucourt and E. Hammerle. *Journal praktische Chem.*, Vol. 120, Parts 6-7, pp. 185-192.

PLANT.—Electro-filters in the chemical industry. Nachtweh. *Chemische Fabrik*, October 10, p. 593; November 7, p. 645.

French

ANALYSIS.—A new reagent for the ions of potassium, ammonium, rubidium, and caesium. T. G. y Arnal. *Chimie et Industrie*, October, pp. 631-632. Also describes a very sensitive reaction for the phosphoric ion, and a method of distinguishing between tin and antimony.

CHEMICAL ENGINEERING.—Heating by oil circulation in the chemical and associated industries. L. Delestré. *Chimie et Industrie*, October, pp. 623-630.

GENERAL.—The constitution of crystalline hydrates. A. Racousine. *Bulletin Société Chimique France*, September, pp. 984-988.

The decomposition of explosives, and the theory of stabilisers. H. Muraour. *Chimie et Industrie*, October, pp. 611-617. The principle rôle of stabilisers is to fix, in the form of neutral compounds, the traces of oxygen compounds of nitrogen formed during manufacture.

HYDROGENATION, CATALYTIC.—Catalytic hydrogenation under reduced pressure.—I. The reduction of methylheptenols. R. Escourru. *Bulletin Société Chimique France*, October, pp. 1101-1115.

ORGANIC.— α -Glucoseptulose and α -glucoheptulite. G. Bertrand and G. Nitzberg. *Bulletin Société Chimique France*, September, pp. 1019-1023.

Aminofibroin. A. Morel and P. Sisley. *Bulletin Société Chimique France*, October, pp. 1132-1133.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

298,279. AMINO ANTHRAQUINONES, THEIR HOMOLOGUES AND SUBSTITUTION PRODUCTS FROM THE CORRESPONDING LEUCO-AMINO COMPOUNDS, PROCESS FOR THE MANUFACTURE OF. A Carpmal, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 11, 1927.

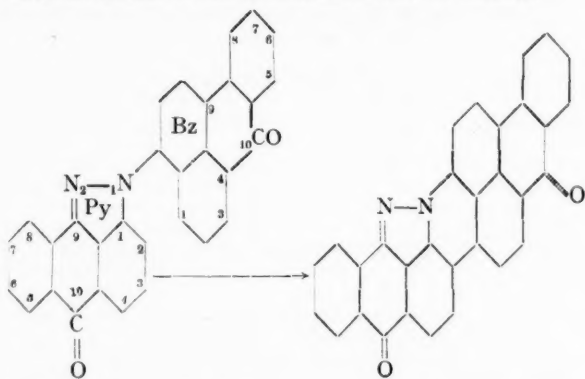
These compounds are obtained by oxidising the corresponding leuco-amino base with a substance yielding oxygen in the presence of a catalyst or a contact substance which exerts a basic or acid reaction. The catalyst may be tri-ethylamine, piperidine, thionyl chloride, or benzoyl chloride. The leuco compounds used are obtained by reaction of leucoquinizarine or derivatives with aliphatic or hydro-aromatic bases. Examples are given of the treatment of leuco-1:4-diamino-anthraquinone, and leuco-1:4-dimethyl-diamino-5:8-dihydroxyanthraquinone.

298,280. NON-DYEING THIO DERIVATIVES OF PHENOLS, MANUFACTURE OF. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany, and A. Thauss, 89, Freiheitstrasse, Cologne-on-Rhine, Germany. Application date, July 11, 1927. Addition to 173,313.

Specification No. 173,313. (See THE CHEMICAL AGE, Vol. VI, p. 145) describes the manufacture of high molecular thio-derivatives of phenol or its homologues or substitution products other than phenols containing nitrogen, by boiling with sulphur and aqueous caustic alkali. In this invention, the caustic alkali is replaced by a neutral salt of an organic carboxylic acid such as acetic acid, formic acid, or weak organic acids such as hydrosulphurous or nitrous acids. Less than 1 per cent. of the salt is required. The free resin-like acids of the thio-phenols obtained can be boiled with dilute alkali and evaporated to obtain a water-soluble alkali salt. Some examples are given.

298,284. VAT DYE STUFFS, MANUFACTURE OF. O. Y. Inray, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 12, 1927.

These vat dyestuffs are obtained by treating with an alkaline condensing agent a Bzl-benzanthronyl-Pyl-pyrazole-anthrone which is obtained from pyrazole-anthrone and a Bzl-halogen-benzanthrone. When the reaction is conducted at a moderate temperature, e.g., 100° C., dyestuffs are obtained having a structure similar to that of dibenzanthrone, for instance,



If a higher temperature is employed, e.g., 160° C., other dyestuffs are obtained which differ considerably from those produced at the lower temperature. The dyestuff may be halogenated to obtain further dyestuffs which differ in shade, and they may be nitrated with or without subsequent reduction to obtain further dyestuffs. Also, oxygen may be introduced into the dyestuffs by treating with oxidising agents, yielding products containing hydroxyl which have little resistance towards chlorine, but which can be rendered fast by subsequent treatment with an alkylating agent. A large number of examples are given.

298,336. COMPOUNDS OF THE MORPHOLINE SERIES, MANUFACTURE OF. Imperial Chemical Industries, Ltd., Broadway Buildings, Westminster, London, S.W.1. J. B. Payman and H. A. Piggott, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, September 1, 1927.

Morpholine and its homologues and derivatives are obtained by the condensation of a β -hydroxy- α -halogenated derivative of ethane or its homologues with an aromatic sulphonamide. A N-di-(β -hydroxyethyl) aryl sulphonamide is obtained which is treated with concentrated sulphuric acid above 100° C. to obtain a morpholine and an aryl sulphonic acid. The aryl sulphonyl-morpholine may be isolated as an intermediate product. Examples are given of the manufacture of several of these products.

298,349. ALDOL, PROCESS FOR THE PRODUCTION OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 19, 1927.

Acetaldehyde and a condensing agent such as dilute caustic soda are passed through spiral tubes which are externally cooled, but the temperature of the reaction mixture is allowed to rise during its passage through the apparatus. The condensing agent may be added in successive portions. The reaction may be stopped before all the aldehyde is condensed and the remainder is extracted by heating and/or vacuum. Aldol is thus produced in a continuous manner.

298,393. DERIVATIVE OF 1-METHYL 3-OXY-4-ISOPROPYL BENZENE PROCESS FOR THE MANUFACTURE OF. S. Edelman, Sambor, Poland. Application date, November 16, 1927.

Trichloroacetaldehyde which has been freshly distilled and neutralised is heated with an equi-molecular quantity of 1-methyl-3-oxy-4-isopropylbenzene on a water bath for several hours under a reflux condenser. The product is brown-grey, odourless, and is a disinfectant.

298,520. WHITE LEAD BY ELECTROLYSIS, MANUFACTURE OF. R. S. Carreras, 8, Prat de la Riba, San Clemente de Llobregat, Barcelona, Spain. Application date, July 7, 1927. Addition to 277,723.

Specification No. 277,723 (see THE CHEMICAL AGE, Vol. XVII, p. 398) describes the manufacture of white lead by electrolysis of sodium chlorate into which carbon dioxide is passed. In this invention a very dilute solution of sodium chlorate is used as a catalyst and carbon dioxide alone is used as the reactive agent in the electrolyte. The electrodes are spaced apart so that basic lead carbonate may be precipitated between them away from the surface of the electrodes. The electrolyte is withdrawn from the vat, continuously regenerated by passing carbon dioxide into it, and continuously returned to the vat.

298,545. VAT DYE STUFFS OF THE ANTHRAQUINONE SERIES, MANUFACTURE OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, June 7, 1927.

Anthraquinone oxazols have been obtained either substituted in the μ -position by radicles of the aliphatic or benzene series, or the anthraquinone oxazols have not been substituted at the μ -carbon atom and these products have no special vat dyeing properties. In this invention, new products are obtained by the introduction of a second anthraquinone radicle into the μ -position of the oxazol ring. These products are formed by condensing an o -amino-hydroxy-anthraquinone with an anthraquinone aldehyde or a substance yielding it during the reaction, or such other anthraquinone derivatives as are capable of furnishing the μ -C-atom of the oxazol ring to be formed, or by condensing an anthraquinone-carbonyl-amino-anthraquinone or components which will furnish it, e.g., anthraquinone isoxazol and an amino-anthraquinone substituted in the o -position to the amino group by a negative substituent or a hydroxyl group. The resulting dyestuffs which contain at least one free amino group may be treated with fuming sulphuric acid and the product alkylated, e.g.,

with *p*-toluene-sulphonic-acid-methyl-ester. A number of examples are given.

298,587. BISMUTH OXIDE, BISMUTH CARBONATE, AND OTHER COMPOUNDS OF BISMUTH, MANUFACTURE OF. R. S. Carreras, 8, Prat de la Riba, San Clemente de Llobregat Barcelona, Spain. Application date, July 7, 1927.

Bismuth hydroxide or hydrated oxide is obtained by the electrolysis of a weak solution of sodium chlorate containing carbon dioxide, employing anodes of bismuth and cathodes of zinc, carbon, iron, or aluminium. The electrolyte is regenerated by passing carbon dioxide through it.

298,670. RECOVERING IODINE FROM CRUDE NITRATE OF SODA. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges. Frankfort-on-Main, Germany. Application date, July 14, 1927.

Crude nitrate of soda is heated in a current of gas or vapour such as sulphur dioxide, nitric oxide, air, or water vapour to 200–250° C. At this temperature iodine is liberated, but practically no decomposition of the nitrate occurs. When the evolution of iodine vapour ceases the temperature is raised to decompose the nitrate to obtain nitrogen oxides.

298,666. VAT DYE STUFFS OF THE ANTHRAQUINONE SERIES, MANUFACTURE OF. A. Carpmal, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 18, 1927.

These dyestuffs are obtained by condensing a benzoyl-amino-alkoxy anthraquinone containing halogen with amino-benzoyl-amino-anthraquinone or with amino-alkoxy-benzoylamino-anthraquinone. In another method, a benzoyl-amino-hydroxy-anthraquinone containing halogen is combined with an anthraquinone derivative containing at least one free amino group and one benzoyl-amino group, and alkylating the resulting condensation products. These dyestuffs may be also manufactured by combining an amino-hydroxy-benzoyl-amino-anthraquinone with a halogen-benzoyl-amino-anthraquinone or a halogen-benzoyl-amino-hydroxy anthraquinone, and alkylating the resulting products. Examples are given of these condensations and subsequent methylation.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention—272,528 (I.G. Farbenindustrie Akt.-Ges.) relating to compounds of the perylene series, see Vol. XVII, p. 173; 273,276 (E. Wecker) relating to esters of fatty acid, see Vol. XVII, p. 201; 274,095 (I.G. Farbenindustrie Akt.-Ges.) relating to cyclic ketones, see Vol. XVII, p. 261; 274,103 (I.G. Farbenindustrie Akt.-Ges.) relating to naphthalene-1:4:5:8-tetracarboxylic acid, see Vol. XVII, p. 261; 274,488 (Distilleries des Deux Sevrès) relating to crotonic aldehyde, see Vol. XVII, p. 291; 274,846 (Soc. Internationale des Procédés Prudhomme Houdry) relating to treatment of metallic, etc., compounds with gases, see Vol. XVII, p. 291; 275,592 (Soc. l'Air liquide, Soc. Anon pour l'Etude et l'Exploitation des Procédés G. Claude) relating to exothermic chemical reactions, see Vol. XVII, p. 331; 277,342 (I.G. Farbenindustries Akt.-Ges.) relating to benzantrones, see Vol. XVII, p. 445; 280,169 (W. S. Calcott, A. E. Parmelee and F. R. Lorrman) relating to tetra ethyl lead, see Vol. xviii, p. 35; 183,501 (H. Suida) relating to concentration of acetic acid, see Vol. XVIII, p. 57; 281,691 (H. Frischer) relating to concentration of nitric acid, see Vol. XVIII, p. 127; 283,926 (P. Berthelemy and H. de Montby) relating to aluminium alloys, see Vol. XVIII, p. 31 (Metallurgical Section); 288,171 (F. Bensa) relating to chlorinated perylenes, see Vol. XVIII, p. 516.

International Specifications not yet Accepted

296,429 and 296,431. DESTRUCTIVE HYDROGENATION. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 1, 1927.

296,429. Coal pastes, tars, oils, etc. containing large quantities of sulphur and asphaltic compounds are heated with hydrogen and catalysts such as molybdenum, in the liquid phase to eliminate the sulphur and asphaltic compounds. The products are then subjected to a cracking treatment to obtain low boiling hydrocarbons.

296,431. Coal suspensions, tars, oils, etc., are treated with hydrogen in several stages of diminishing pressure. In the first stage, hydrogenation is effected in the liquid phase at high pressure, and in the last stage the products are heated in

the vapour phase at low pressure. American crude mineral oil may be treated in this manner to obtain products containing 75 per cent. benzines boiling below 200° C.

296,443. DISTILLING SOLID CARBONACEOUS MATERIALS. Fabrique Nationale de Produits Chimiques et d'Explosifs Soc. Anon., 93, Rue du Duc, Brussels. International Convention date, September 2, 1927.

Coal, lignite, peat, or oil shale are carbonized with iron or manganese oxides, or alkali or alkaline earth carbonates to obtain a larger yield of lighter tar. The coke is very porous and contains metallic oxides or metals; it may be used as a catalyst in the production of hydrocarbons and alcohols from carbon monoxide, hydrogen, and gaseous hydrocarbons.

296,730. TITANIUM DIOXIDE. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 6, 1927.

Titaniferous solutions are hydrolysed in presence of hydrofluoric acid or a soluble fluoride. The product is easily filtered and remains white when ignited at 900° C. The hydrolysis is effected by boiling.

296,758. DYES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 7, 1927.

These dyes are obtained by treating the dyestuff obtained by condensation of 1:5- or 1:8-di- α -anthraquinonyl-amino-anthraquinone with concentrated sulphuric acid, diluting the mixture with water, and oxidising the precipitate, e.g., with sodium hypochlorite. Examples are given.

296,761. DYES AND INTERMEDIATES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 7, 1927.

Hydroxylated 2:3-phthaloyl-thionaphthenes are obtained by condensing benzhydroquinone with thionaphthene-2:3-dicarboxylic acid anhydride or 5-chlor-7-methyl-thionaphthene-2:3-dicarboxylic acid anhydride, and hydroxy-benzhydroquinone with thionaphthene-2:3-dicarboxylic acid anhydride, the condensing agent being aluminium chloride with or without sodium and or ferric chloride. Thiophene-2:3-dicarboxylic acids of the naphthalene and anthracene series can also be employed.

296,782. ISOTHIUREA ETHERS. Schering-Kahlbaum Akt.-Ges., 170, Müllerstrasse, Berlin. International Convention date, September 9, 1927.

A mercaptan in vapour form is passed into a cyanamide solution at 100° C. to obtain isothiurea ethers. Ethyl-mercaptan and cyanamide yield S-ethyl-isothiurea, methyl mercaptan and ethyl-cyanamide yield N-ethyl-S-methyl-isothiurea, and methyl-mercaptan and dimethyl- (or diethyl) cyanamide yield NN-dimethyl- (or diethyl) S-methylisothiurea.

296,974. ACETIC ACID. Soc. Anon. des Distilleries des Deux-Sevres, Melle, Deux-Sevres, France. International Convention date, September 10, 1927.

Acetic acid is extracted from its aqueous solutions by amyl acetate, and the extract freed from water by ethyl acetate, which forms an azeotropic mixture with water, but not with acetic acid. The solution is distilled to obtain anhydrous acetic acid.

296,984. DESTRUCTIVE HYDROGENATION. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 10, 1927.

Suspensions of coals in liquids, tars, mineral oils, and their distillation, extraction, destructive hydrogenation, and other conversion products are destructively hydrogenated to obtain anti-knock motor fuels.

296,999. SULPHONATED FATTY ACIDS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 10, 1927.

Unsaturated fatty acids are sulphonated by means of fuming sulphuric acid in the presence of halogenated unsaturated hydrocarbons, e.g., trichlorethylene.

297,001. ANTHRAQUINONE DERIVATIVES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 9, 1927.

An anthraquinone-*o*-sulphocarboxylic acid is treated with halogen to obtain *o*-halogen-anthraquinone carboxylic acids. The anthraquinone-*o*-sulphocarboxylic acids are obtained by hydrolysis of *o*-cyano-anthraquinone sulphonic acids, and the *o*-cyano-anthraquinone sulphonic acids are obtained from

o-amino-anthraquinone sulphonic acids by the diazo reaction. Examples of all these reactions are given.

LATEST NOTIFICATIONS.

- 300,114. Manufacture of indigoid vat dyestuffs. I.G. Farbenindustrie Akt.-Ges. November 5, 1927.
 299,763. Process for the production of water-glass solutions. I.G. Farbenindustrie Akt.-Ges. October 31, 1927.
 299,765. Process for removing ammonia and sulphuretted hydrogen from gases. Hansen, Dr. C. J. October 31, 1927.
 299,787. Dyeing of mixed fabrics containing acetate silk, and the manufacture of dye-products suitable therefor. I.G. Farbenindustrie Akt.-Ges. October 31, 1927.
 299,790. Process of dyeing or colouring higher fatty acids. I.G. Farbenindustrie Akt.-Ges. October 31, 1927.
 299,791. Manufacture of azo-dyestuffs. Soc. of Chemical Industry in Basle. October 31, 1927.
 299,887. Process and apparatus for filling solid articles in layers into receptacles. I.G. Farbenindustrie Akt.-Ges. November 3, 1927.
 300,129. Process of making homogeneous alloys of lead with alkali metals or alkaline earth metals. I.G. Farbenindustrie Akt.-Ges. November 5, 1927.
 300,130. Manufacture of compounds having hydrogenated ring systems. I.G. Farbenindustrie Akt.-Ges. November 5, 1927.

Specifications Accepted with Date of Application

- 272,108. Fatty acids containing proportions of hydroxy-fatty acids. Manufacture of. C. Stiepel. June 4, 1926.
 276,675. Carburisation of ferrous metals. British Thomson-Houston Co., Ltd. August 26, 1926.
 277,325. Oxides of metals, Apparatus for reducing. J. W. Hornsey. September 8, 1926.
 277,670. Benzanthrone carboxylic acids, Manufacture of. I.G. Farbenindustrie Akt.-Ges. September 20, 1926.
 281,290. Phenylthioglycolic acids containing halogen and alkyl groups in the nucleus, Manufacture of. I.G. Farbenindustrie Akt.-Ges. November 24, 1926.
 282,803. Alkylisrosinduline sulphonc-acids, Manufacture of. J. R. Geigy Akt.-Ges. December 27, 1926.
 284,280. Sulphonation of fats, fatty oils, or fatty acids. H. T. Böhme Akt.-Ges. January 27, 1927.
 284,345. Continuous transformation into light hydrocarbons of the hydrocarbons from petroleum and the like, Process and apparatus for. H. Carroll. January 28, 1927.
 284,661. Pure alumina, Process of preparing. Zaidan Hojin Rikagaku Kenkyujo. February 3, 1927.
 288,974. Copper alloys. Metallbank und Metallurgische Ges. Akt.-Ges. April 16, 1927.
 290,986. Compounds of metal and sulphur, Production of. K. Brodowski. May 21, 1927.
 299,333. Dyestuff intermediates, Production of. W. Smith, J. Thomas, and Scottish Dyes, Ltd. April 19, 1927.
 299,342. Aliphatic acid anhydrides, Manufacture of. British Celanese, Ltd., H. Dreyfus, and W. Bader. July 23, 1927.
 299,347. Converting or cracking heavy oils into lighter oils, Process and apparatus for. A. H. Marks and P. Russell (Petroleum Process Co.) June 13, 1927.
 299,481. Treatment of gases or vapours for the recovery or extraction of hydrocarbons therefrom. P. M. Salerni. April 26, 1927.
 299,483. Silica from silicate solutions, Preparation of. P. Spence and Sons, Ltd., T. J. I. Craig, and A. Kirkham. April 28, 1927.
 299,487. Dimethylol urea, Manufacture of. Pollopos, Ltd., E. C. C. Baly, and E. J. Baly. June 24, 1927.
 299,492. Hydrogen or hydrogen-nitrogen mixtures or hydrogen-carbon monoxide mixtures, Production of. M. Casale-Sacchi. July 25, 1927.
 299,501. Intermediates and dyes therefrom. British Dyestuff Corporation, Ltd., and M. Mendoza. July 27, 1927.
 299,502. Iron alloys. W. S. Smith, H. J. Garnett, and J. A. Holden. July 27, 1927.
 299,511. Sulphur dyestuffs, Manufacture of. A. Carpmal. (I.G. Farbenindustrie Akt.-Ges.) July 28, 1927.
 299,521. Valuable coloured compounds, Production of. I. G. Farbenindustrie Akt.-Ges. July 28, 1927. Addition to 275,943.
 299,585. Preservation of indiarubber. Rubber Growers' Association, Inc., G. Martin, and W. Davey. September 26, 1927.
 299,588. Hydrogen from gaseous mixtures rich in same, Recovery of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.) September 29, 1927.
 299,683. Hydrocarbon oils into lighter oils, Conversion of. C. Arnold. (Standard Development Co.) September 22, 1927.
 299,689. Electrolytic extraction of aluminium. H. Wade. (Aluminium-Industrie Akt.-Ges.) October 25, 1927.
 reaction. 32,931. November 10. (Germany, November 11, 1927.)
 Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of derivatives of terephthalic acid. 32,554. November 7.
 Chemical Works, formerly Sandoz. Preparation of compounds of C C-disubstituted barbituric acids, etc. 32,417. November 6. (Switzerland, December 3, 1927.)
 Colev, H. E. Apparatus for production of zinc. 32,630. November 8.
 Du Pont de Nemours and Co., E. I. Process of treating casein varnish-finished coated fabrics, etc. 32,945. November 10. (United States, November 23, 1927.)
 Geigy Akt.-Ges., J. R. Azo dyestuffs. 32,363. November 6. (Germany, December 3, 1927.)
 Geigy Akt.-Ges., J. R. Manufacture of acid dyestuffs. 32,810. November 9. (Germany, November 14, 1927.)
 Hessen, R. Manufacture of condensation products from phenols, etc. 32,183. November 5.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of products from synthetic rubber. 32,194. November 5.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Apparatus for treatment of salt masses. 32,195. November 5.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Means for improvement of textiles, etc. 32,196. November 5.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of reduction products of indoxyl, etc. 32,374. November 6.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of valuable products from organised substances. 32,645. November 8.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of catalysts for oxidation of hydrocarbons. 32,646. November 8.
 I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Catalytic decomposition of hydrocarbons. 32,647. November 8.
 I.G. Farbenindustrie Akt.-Ges. Making homogeneous alloys of lead. 32,202. November 5. (Germany, November 5, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of compounds having hydrogenated ring systems. 32,203. November 5. (Germany, November 5, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Production of hydrocarbon oils, etc. 32,376. November 6. (Germany, November 19, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of urethanes of secondary alcohols. 32,377. November 6. (Germany, November 7, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of dyestuffs. 32,378. November 6. (Germany, November 7, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of substances resembling cork. 32,391. November 6. (Germany, November 8, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Roll-film spools. 32,392. November 6. (Germany, November 11, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of photographic developers. 32,518. November 7. (Germany, November 12, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Gas producers. 32,541. November 7. (Germany, November 10, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Vulcanisation of rubber. 32,553. November 7. (Germany, November 8, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of quinoline indol compounds. 32,800. November 9. (Germany, November 11, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of dyestuffs. 32,811. November 9. (Germany, November 12, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of liquid, etc., products by gaseous reaction. 32,931. November 10. (Germany November 11, 1927.)
 I.G. Farbenindustrie Akt.-Ges. Manufacture of nitro-cellulose. 32,953. November 10. (Germany, November 14, 1927.)
 Imperial Chemical Industries, Ltd. Varnishes, etc. 32,399. November 6.
 Imperial Chemical Industries, Ltd. Varnishes, etc. 32,818. November 9.
 Kali-Chemie Akt.-Ges. Preparation of sodium sulphide, etc. 32,562. November 7. (Germany, November 28, 1927.)
 Kali-Chemie Akt.-Ges. Production of calcined phosphates. 32,612. November 8. (Germany, November 23, 1927.)
 Kunsthartzfabrik Dr. F. Pollak Ges. Manufacture of condensation products. 32,319. November 6. (Austria, December 5, 1927.)
 Loveluck, R. J., Scottish Dyes, Ltd., Smith, W., and Thomas, J. Production of dyestuffs, etc. 32,535. November 7.
 Plauson, H. and Potts, H. E. Preparation of semi-colloids, etc. 32,586. November 8.
 Tasch Laboratory, Ltd. Manufacture of organic mercury compounds. 32,641. November 8. (Germany, November 23, 1927.)
 Wacker Ges. für Elektrochemische Industrie Ges., Dr. A. Manufacture of metal alcoholates. 32,204. November 5. (Germany, January 21.)
 Wacker Ges. für Elektrochemische Industrie Ges., Dr. A. Manufacture of ketonic acid esters. 32,393. November 6. (Germany, January 14.)

Applications for Patents

- Berl, E. Manufacture of activated carbon. 32,548. November 7.
 Carpmal, A. Manufacture of liquid, etc., products by gaseous

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.
ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.
ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.
ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.
BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.
BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.
BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags carriage paid any station in Great Britain.)
CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.
COPPER SULPHATE.—£25 to £25 10s. per ton.
METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall., pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised, 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.
NICKEL SULPHATE.—£38 per ton d/d.
NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
POTASH CAUSTIC.—£30 to £33 per ton.
POTASSIUM BICHROMATE.—£4½d. per lb.
POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.
SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.
SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.
SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.
SODIUM ACETATE 97/98%.—£21 per ton.
SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.
SODIUM BICHROMATE.—3½d. per lb.
SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.
SODIUM CHLORATE.—2½d. per lb.
SODIUM NITRATE, 100% BASIS.—£27 per ton d/d.
SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.
SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.
SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.
SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.
SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 6½d. per lb. Crude 60's, 2s. per gall. 1929—1s. 11d. per gall.
ACID CRESYLIC 99/100.—2s. 5d. to 3s. per gall. 97/99.—2s. 2d. to 2s. 3d. per gall. Pale, 95%, 1s. 11d. to 2s. per gall. Dark, 1s. 9d. to 1s. 10d.
ANTHRACENE.—A quality, 2d. to 2½d. per unit. 40%, £5 per ton.
ANTHRACENE OIL, STRAINED.—7½d. to 8d. per gall. Unstrained, 7½d. to 7½d. per gall.
BENZOLE.—Prices at works: Crude, 10d. to 10½d. per gall.; Standard Motor, 1s. 4d. to 1s. 4½d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall.; Pure, 1s. 10d. to 1s. 11d. per gall.
TOLUOLE.—90%, 1s. 5d. to 1s. 10d. per gall. Firm. Pure, 1s. 10d. to 2s. per gall.
XYLOL.—1s. 3d. to 1s. 11d. per gall. Pure, 1s. 6d. to 1s. 7d. per gall.
CREOSOTE.—Cresylic, 20/24%, 9d. per gall.; Heavy, 6½d. to 8d. per gall. Standard specification, middle oil, 6½d. to 6½d. per gall. 5½d. to 6d. per gall. ex works. Salty, 7½d. per gall.
NAPHTHA.—Crude, 8½d. to 9d. per gall. Solvent 90/160, 1s. 1½d. to 1s. 2½d. per gall. Solvent 95/160, 1s. 2d. to 1s. 7d. per gall. Solvent 90/190, 11d. to 1s. 4d. per gall.
NAPHTHALENE, CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed, £5 per ton. Hot pressed, £8 10s. per ton.
NAPHTHALENE.—Crystals, £12 5s. to £14 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.
PITCH.—Medium soft, 40s. to 42s. 6d. per ton, f.o.b., according to district. Nominal.
PYRIDINE.—90/140, 5s. to 6s. 6d. per gall. 90/180, 2s. 3d. to 4s. per gall. Heavy, 1s. 9d. to 2s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:
ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
ACID ANTHRANILIC.—6s. per lb. 100%.
ACID BENZOIC.—1s. 8½d. per lb.
ACID GAMMA.—4s. 6d. per lb.
ACID H.—3s. per lb.
ACID NAPHTHIONIC.—1s. 6d. per lb.
ACID NEVILLE AND WINTHER.—4s. 9d. per lb.
ACID SULPHANILIC.—8½d. per lb.
ANILINE OIL.—8d. per lb. naked at works.
ANILINE SALTS.—8d. per lb. naked at works.
BENZALDEHYDE.—2s. 3d. per lb.
BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.
BENZOIC ACID.—1s. 8½d. per lb.
o-CRESOL 29/31° C.—5½d. per lb.
m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.
p-CRESOL 32/34° C.—2s. 3d. to 2s. 6d. per lb.
DICHLORANILINE.—2s. per lb.
DIMETHYLANILINE.—1s. 11d. per lb.
DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.
DINITROCHLOROBENZENE.—£84 per ton d/d.
DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.
DIPHENYLAMINE.—2s. 10d. per lb. d/d.
a-NAPHTHOL.—2s. per lb. d/d.
B-NAPHTHOL.—10d. per lb. d/d.
a-NAPHTHYLAMINE.—1s. 3d. per lb.
B-NAPHTHYLAMINE.—3s. per lb.
o-NITRANILINE.—5s. 9d. per lb.
m-NITRANILINE.—3s. per lb. d/d.
p-NITRANILINE.—1s. 8d. per lb.
NITROBENZENE.—6d. per lb. naked at works.
NITRONAPHTHALENE.—1s. 3d. per lb.
R. SALT.—2s. 2d. per lb.
SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.
o-TOLUIDINE.—8d. per lb.
p-TOLUIDINE.—1s. 10d. per lb. naked at works.
m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.
N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand.
Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.
CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.
IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.
RED LIQUOR.—9d. to 10d. per gall.
WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.
WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.
WOOD TAR.—£4 to £5 per ton.
BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 3d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.
ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.
BARYTES.—£2 16s. 10d. to £3 10s. per ton, according to quality.
CADMIUM SULPHIDE.—5s. to 6s. per lb.
CARBON BISULPHIDE.—£25 to £27 10s. per ton, according to quantity.
CARBON BLACK.—5½d. per lb., ex wharf.
CARBON TETRACHLORIDE.—£45 to £54 per ton, according to quantity. drums extra.
CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
DIPHENYLGUANIDINE.—3s. 9d. per lb.
INDIARUBBER SUBSTITUTES, WHITE AND DARK.—4½d. to 5½d. per lb.
LAMP BLACK.—£32 10s. per ton, barrels free.
LEAD HYPOSULPHITE.—9d. per lb.
LITHOPHONS, 30%.—£22 10s. per ton.
MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.
SULPHUR.—£9 to £11 per ton, according to quality.
SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
SULPHUR PRECIP. B.P.—£55 to £60 per ton.
THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.
THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
VERMILION, PALE OR DEEP.—6s. 10d. to 7s. per lb.
ZINC SULPHUR.—11d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.
ACID, ACETYL SALICYLIC.—2s. 4d. to 2s. 5d. per lb.
ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 6d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—2s. 7d. to 2s. 8d. per lb.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. 10½d. per lb.

ACID, SALICYLIC, B.P. PULV.—1s. 6d. to 1s. 7d. per lb. Technical.—10½d. to 11½d. per lb.

ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.

ACID, TARTARIC.—1s. 4½d. per lb., less 5%.

ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.

AMIDOL.—7s. 6d. to 9s. per lb., d/d.

AMIDOPYRIN.—7s. 9d. to 8s. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimed, 1s. per lb.

ATROPINE SULPHATE.—9s. per oz.

BARBITONE.—5s. 9d. to 6s. per lb.

BENZONAPHTHOL.—3s. to 3s. 3d. per lb. spot.

BISMUTH CARBONATE.—9s. 9d. per lb.

BISMUTH CITRATE.—9s. 3d. per lb.

BISMUTH SALICYLATE.—8s. 9d. per lb.

BISMUTH SUBNITRATE.—8s. 3d. per lb.

BISMUTH NITRATE.—Cryst. 5s. 9d. per lb.

BISMUTH OXIDE.—12s. 3d. per lb.

BISMUTH SUBCHLORIDE.—10s. 9d. per lb.

BISMUTH SUBGALLATE.—7s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.

BISMUTH ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts., 11d. per lb.

BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Ammonium, 2s. to 2s. 3d. per lb.; potassium, 1s. 8½d. to 1s. 11½d. per lb.; sodium, 1s. 11d. to 2s. 2d. per lb.; granulated, ½d. per lb. less; all spot. Large quantities at lower rates.

CALCIUM LACTATE.—B.P., 1s. 2½d. to 1s. 3½d. per lb.

CAMPOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.

CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.

CHLOROFORM.—2s. 5½d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHERS.—S.G. 730—11d. to 1s. 0d. per lb., according to quantity; other gravities at proportionate prices.

FORMALDEHYDE, 40%.—37s. per cwt., in barrels ex wharf.

GUAIACOL CARBONATE.—4s. 6d. to 4s. 9d. per lb.

HEXAMINE.—1s. 11d. to 2s. 2d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.

HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 3d. per lb., for 28 lb. lots; potassium, 3s. 7d. per lb.; sodium, 3s. 6d. per lb.

IRON AMMONIUM CITRATE.—B.P., 2s. 11d. to 3s. 2d. per lb. Green, 3s. 4d. to 3s. 7d. per lb.; U.S.P., 3s. to 3s. 3d. per lb.

IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.

IRON QUININE CITRATE.—B.P., 8½d. to 9½d. per oz.

MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.

MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 1s. 9d. to 2s. 3d. per lb.

MENTHOL.—A.B.R. recrystallised B.P., 23s. 6d. per lb. net; Synthetic, 10s. to 11s. per lb.; Synthetic detached crystals, 10s. to 16s. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph., B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 3d. to 1s. 6d. per lb.

METHYL SULPHONAL.—8s. 9d. to 9s. per lb.

METOL.—9s. to 11s. 6d. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 4d. per lb.

PHENACETIN.—2s. 5d. to 2s. 8d. per lb.

PHENAZONE.—3s. 9d. to 4s. per lb.

PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—96s. per cwt., less 2½ per cent.

POTASSIUM CITRATE.—B.P.C., 2s. 9d. to 3s. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.

QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.

RESORCIN.—2s. 10d. to 3s. per lb., spot.

SACCHARIN.—47s. per lb.; in quantity lower.

SALOL.—2s. 3d. to 2s. 6d. per lb.

SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.

SODIUM CITRATE, B.P.C., 1911—2s. 6d. to 2s. 9d. per lb., B.P.C. 1923—2s. 10d. to 2s. 11d. per lb. U.S.P., 2s. 9d. to 3s. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 100s. per cwt. Crystals, 4s. per cwt. extra.

SODIUM SALICYLATE.—Powder, 1s. 6d. to 1s. 7d. per lb. Crystal, 1s. 7d. to 1s. 8d. per lb.

SODIUM SULPHATE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.

SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.

SULPHONAL.—6s. 6d. to 6s. 9d. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.

THYMOL.—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 12s. 6d. per lb.

Perfumery Chemicals

ACETOPHENONE.—6s. 6d. per lb.

AUBEPINE (EX ANETHOL).—11s. per lb.

AMYL ACETATE.—2s. 6d. per lb.

AMYL BUTYRATE.—4s. 9d. per lb.

AMYL SALICYLATE.—2s. 9d. per lb.

ANETHOL (M.P. 21/22° C.).—5s. 3d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 10d. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 10d. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL BENZOATE.—2s. 3d. per lb.

CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.

COUMARIN.—8s. 6d. per lb.

CITRONELLOL.—13s. per lb.

CITRAL.—8s. per lb.

ETHYL CINNAMATE.—6s. per lb.

ETHYL PHTHALATE.—2s. 9d. per lb.

EUGENOL.—10s. 6d. per lb.

GERANIOL (PALMAROSA).—20s. per lb.

GERANIOL.—6s. 6d. to 11s. per lb.

HELIOTROPINE.—5s. per lb.

ISO EUGENOL.—16s. per lb.

LINALOL.—Ex Bois de Rose, 13s. per lb. Ex Shui Oil, 9s. 3d. per lb.

LINALYL ACETATE.—Ex Bois de Rose, 17s. 6d. per lb. Ex Shui Oil Linalol, 10s. 6d. per lb.

METHYL ANTHRANILATE.—8s. per lb.

METHYL BENZOATE.—4s. per lb.

MUSK KETONE.—34s. per lb.

MUSK XYLOL.—7s. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—11s. per lb.

PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.

RHODINOL.—45s. per lb.

SAFROL.—1s. 5d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—16s. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.

ANISE OIL.—2s. 9d. per lb.

BERGAMOT OIL.—24s. per lb.

BOURBON GERANIUM OIL.—22s. per lb.

CAMPOR OIL.—9d. per lb.

CANANGA OIL, JAVA.—12s. per lb.

CINNAMON OIL LEAF.—6s. 6d. per oz.

CASSIA OIL, 80/85%.—7s. per lb.

CITRONELLA OIL.—Java, 2s. 2d. per lb., c.i.f. U.K. port. Ceylon, pure, 1s. 11d. per lb.

CLOVE OIL (PURE 90/92%).—8s. per lb.

EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.—2s. per lb.

LAVENDER OIL.—Mont Blanc, 48/50%, Esters, 16s. 3d. per lb.

LEMON OIL.—15s. 6d. per lb.

LEMONGRASS OIL.—4s. per lb.

ORANGE OIL, SWEET.—17s. 3d. per lb.

OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.

PALMA ROSA OIL.—12s. 6d. per lb.

PEPPERMINT OIL.—Wayne County, 15s. 3d. per lb.; Japanese, 9s. 3d. per lb.

PETITGRAIN.—8s. per lb. Sandalwood, Mysore, 28s. per lb., 95% 10s. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, November 15, 1928.

BUSINESS generally has been moderately active during the current week and prices on the whole show little change. Export trade has been better and there is a good volume of inquiry on the market.

General Chemicals

ACETONE remains in short supply with price unchanged at £75 to £77 10s. per ton, and future outlook is extremely firm.

ACID ACETIC continues strong and in good demand, with price unchanged.

ACID FORMIC is unchanged at £44 per ton for 85%, at which figure it is in good demand.

ACID OXALIC is firm at £30 10s. to £32 10s. per ton, according to quantity and delivery.

ACID LACTIC meets with a fair demand at £43 per ton for 50% by weight.

ACID TARTARIC remains unchanged at 1s. 4½d. to 1s. 4¼d. per lb., less 5%. Price continues firm.

AMMONIUM CHLORIDE is unchanged at about £19 per ton.

ALUMINA SULPHATE.—The market has advanced and is now extremely firm at from £6 15s. to £7 per ton, and a further advance is not unlikely.

BARIUM CHLORIDE continues extremely firm and most manufacturers are well sold ahead, moderate supplies may be obtained at from £10 10s. to £11 per ton, ex store.

COPPER SULPHATE has advanced and is now quoted at £25 per ton.

There is quite a good volume of export inquiry in the market. CREAM OF TARTAR is unchanged in value at £98 10s. to £100 per ton less 2½% for B.P., 99/100%, with a good demand.

FORMALDEHYDE.—The increased demand continues and price is very firm at £39 per ton, ex wharf.

Nitrogen Products

Sulphate of Ammonia.—The demand from abroad still continues, but is not quite on so large a scale. Prices remain firm at £9 11s. 9d. to £9 14s. per ton, f.o.b. U.K. port, in single bags. The stocks at makers' works in this country are extremely low for the time of year. The home trade position continues to be uninteresting. Deliveries are being made in the normal manner.

Nitrate of Soda.—After the large business which has been done, the market is firm and quiet.

Latest Oil Prices

LONDON, November 14.—LINSEED OIL was steady and occasionally 2s. 6d. per ton higher. Spot, ex-mill, £29 5s.; November to April, £28 12s. 6d.; May-August, £28 15s.; and September-December, £29 2s. 6d., naked. RAPE OIL quiet. Crude extracted, £40 10s.; technical refined, £42 10s., naked, ex-wharf. COTTON OIL quiet. Egyptian crude, £30 10s.; refined common edible, £36; deodorised, £38, naked, ex-mill. TURPENTINE was steady and inactive, American, spot, 47s.; December, 47s. 3d.; and January-April, 47s. 9d. per cwt.

HULL, November 14.—LINSEED OIL.—Spot to December, £29 5s.; January-April to May-August, £29 per ton, naked. COTTON OIL.—Bombay crude, spot, £29 15s.; Egyptian crude, spot (new) and November-February, £30 5s.; edible refined, spot and November-February, £33 15s.; technical, spot, £33 5s.; deodorised, spot, £33 15s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £37 15s. per ton, naked. GROUNDNUT OIL.—Crushed/extracted, £37 10s.; deodorised, £41 10s. per ton. SOYA OIL.—Extracted and crushed, £32 10s.; deodorised, £36 per ton. RAPE OIL.—Crude extracted, £40 15s.; refined, £42 15s. per ton, net cash terms, ex mill. TURPENTINE, CASTOR OIL, and COD OIL unchanged.

South Wales By-Products

THE brighter note in South Wales by-product activities is being maintained, but business, of course, is still far from satisfactory. Pitch has fallen back a little in demand, but prices are unchanged round 45s. to 50s. per ton, prompt delivery. Refined tars continue to meet with a good call, with values unchanged, gasworks tar changing hands at from 7½d. to 7¼d. per gallon delivered, and coke oven tar at from 7¼d. to 8d. per gallon delivered. Crude tar has a slightly better call round 50s. per ton, makers' works. Crude naphthalene, which is being firmly held round 80s. to 85s. per ton, has practically no demand, while whizzed is only a little better round

LEAD ACETATE is very firm and the product has been in very good request at £42 10s. for white, with brown at £1 per ton less.

LEAD NITRATE is firm at £36 10s. to £37 per ton.

LIME ACETATE has been in fair request and price is unchanged.

METHYL ACETONE continues firm at £58 to £60 per ton for 45% material.

POTASSIUM CARBONATE is unchanged at £25 to £27 per ton for 96/98%.

POTASSIUM CHLORATE is firm and unchanged at £28 per ton.

POTASSIUM PERMANGANATE is unchanged at 5¼d. to 5½d. per lb. for B.P.

POTASSIUM PRUSSATE is unchanged at £63 10s. to £65 10s. per ton.

Demand is good and the product has an upward tendency.

SODIUM ACETATE is unchanged at £21 10s. to £22 per ton.

SODIUM PHOSPHATE is very firm at £12 to £13 per ton, with demand good.

SODIUM PRUSSATE is unchanged at 4½d. to 5d. per lb.

TARTAR EMETIC continues in fair request at 10¼d. per lb.

ZINC SULPHATE is in good demand at £12 to £13 per ton.

Coal Tar Products

The coal tar product market remains fairly active, and there is little change in prices to report from last week.

MOTOR BENZOL remains scarce, at 1s. 7d. per gallon, on rails, naked.

SOLVENT NAPHTHA continues firm at 1s. 2½d. per gallon, on rails.

HEAVY NAPHTHA is unchanged at 1s. 1d. to 1s. 1½d. per gallon, on rails.

CREOSOTE OIL is firm, at 5½d. per gallon, on rails, in the North, to the end of the year, and at 6d. per gallon in London.

CRESYLIC ACID is unchanged, the 98/100% quality being quoted at about 2s. 2d. per gallon, f.o.b., and the dark quality 95/97%, at 1s. 10d. per gallon, f.o.b., naked.

NAPHTHALENE remains firm, at £5 per ton for the 74/76 quality, and £6 to £6 10s. per ton for the 76/78 quality.

PITCH is unchanged at 40s. to 45s., f.o.b. U.K. port.

100s. per ton. Patent fuel and coke exports are slightly better, with values unchanged. Patent fuel, ex-ship Swansea, sells at from 19s. 6d. to 19s. 9d. per ton; ex-ship Cardiff, 20s. to 21s. per ton. Coke quotations are:—Furnace, 20s. to 21s. per ton; foundry, 25s. to 30s. 6d. per ton; furnace, at ovens, 19s. to 20s. per ton; foundry, at ovens, 27s. 6d. to 33s. per ton. Patent fuel exports over the four last ascertainable weeks amounted to 73,114 tons while oil imports over the same period amounted to 27,696,016 gallons.

Alterations in the Price of Cocaine

MAY AND BAKER, LTD., announce the following alterations in the prices of cocaine and its salts:—

	s. d.
Alkaloid.....	20 10 per oz.
Hydrochloride	18 10 "
Nitrate.....	18 10 "
Hydrobromide	20 10 "
Citrate.....	20 10 "
Benzoate	20 10 "

25 oz. tins free, other packages extra. These prices apply for delivery in bulk, that is to say, for delivery in not less than 25 oz. tins. For delivery in smaller containers the full list price will apply.

May and Baker, Ltd., also announce an increase of 2d. per lb. in the price of camphor.

Lawes' Chemical Manure: Directors to Submit Proposals

SHAREHOLDERS of the Lawes' Chemical Manure Co. have received the following announcement by the directors: "The accounts for the year ended June 30, 1928, are completed. While a profit is recorded, the directors have decided to put before the shareholders certain proposals for dealing with the situation. Owing to various legal and technical difficulties, there has been some unavoidable delay in completing the scheme. It is hoped very shortly to hold the annual general meeting, when the directors will place their proposals before the shareholders." The company, which dates back to 1872, has paid no dividend on its non-cumulative preference and ordinary capital since 1920. Losses were made in the four succeeding years and small profits were recorded for 1925, 1926 and 1927, a credit balance of £4,802 being carried forward at June, 1927.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, November 14, 1928.

DURING the past week, business in the heavy chemical market has been rather quieter and there is practically no change in current values.

Industrial Chemicals

ACETONE, B.G.S.—Nominally £74 10s. to £77 10s. per ton, ex wharf, according to quantity, but very little available for immediate delivery.

ACID ACETIC, 98/100%.—Glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton. Powder, £32 per ton, packed in bags carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Price maintained at 6½d. per lb. delivered or f.o.b. U.K. ports, in moderate demand.

ACID CITRIC, B.P. CRYSTALS.—Rather easier and now offered at 28. 8d. per lb., less 5%, ex wharf, prompt shipment from the continent.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC, 80%.—£24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the continent at 3½d. per lb., ex wharf. Spot material quoted 3½d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works for 144° quality; £5 15s. per ton for 168° quality. Dearsenicated quality, 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4½d. per lb., less 5%, ex wharf. Offered for prompt shipment at 1s. 4d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—On offer at £5 10s. per ton, c.i.f. U.K. ports. Spot material quoted £5 15s. per ton, ex store.

ALUM. LUMP POTASH.—Quoted £8 7s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the continent. Crystal meal quoted £8 10s. per ton, ex store.

AMMONIA ANHYDROUS.—Quoted 9½d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton. Powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA, LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb. delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals, offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE, 98/100%.—On offer for prompt shipment from China at £39 10s. per ton, ex wharf.

ARSENIC, WHITE POWDERED.—Quoted £18 10s. per ton, ex wharf, prompt despatch from mines. Spot material on offer at £19 15s. per ton, ex store.

BARIUM CHLORIDE.—Quoted £9 15s. per ton, c.i.f. U.K. ports, prompt shipment from the Continent. Spot material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 5s. to £4 15s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. port.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—In fairly good demand and price advanced to about £24 10s. per ton, ex wharf.

FORMALDEHYDE, 40%.—Now quoted £36 per ton, c.i.f. U.K. ports. Spot material quoted at £38 5s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—On offer at £29 10s. per ton, ex store.

LEAD, WHITE.—Quoted £37 per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted £41 15s. per ton, ex store. Brown on offer at about £40 per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64 O.P., quoted 1s. 4d. per gallon, less 2½%, delivered.

POTASSIUM BICHROMATE.—4½d. per lb. delivered minimum 4-ton lots. Under 4-ton lots, ½d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Offered from the Continent at £25 per ton, c.i.f. U.K. ports. Spot material available at £26 per ton, ex store.

POTASSIUM CHLORATE, 99½/100%, POWDER.—Now on offer £22 10s. per ton, c.i.f. U.K. ports. Crystals, 20s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5½d. per lb., ex wharf.

POTASSIUM PRUSSIAN (YELLOW).—Spot material quoted 6½d. per lb., ex store. Offered from the Continent at 6½d. per lb., ex wharf, prompt shipment.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton, and 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—On offer for prompt delivery at about £21 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyers' works, minimum 4-ton lots. Under 4 and over 2 ton lots, ½d. per lb. extra. Under 2 ton lots, 3½d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, 27s. 6d. per ton extra. Light soda ash, £7 3s. 9d. per ton, ex quay, minimum 4-ton lots with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRATE.—Quoted £10 4s. per ton, carriage paid buyers' station for ordinary quality. Refined quality, 2s. 6d. to 5s. per ton extra.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works 52s. 6d. per ton delivered for unground quality. Ground quality, 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption—solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £7 2s. 6d. per ton, delivered buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material, 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE, 98%.—British material now quoted £22 10s. per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Offered from the Continent at about £10 5s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

British Capital for Finnish Cellulose Mill

BRITISH capital is being invested in a large cellulose undertaking, and application has been made to the Finnish Government for the registration of the company. The promoters are Zellstoff-fabrik Waldhof, of Mannheim, and Helbert, Wagg and Co., Ltd., of London. The intention is to erect a cellulose mill in Eastern Finland, near Kexholm, where the Waldhof Co. had previously secured sites. The initial capital of the company will be 120,000,000 Finnish marks, of which 50 per cent. in ordinary shares will be subscribed by Zellstoff-fabrik. Waldhof and 50 per cent. in preference shares by Helbert, Wagg and Co. It is understood that the projected mill will produce 100,000 tons of sulphite annually, or double the output of the present biggest Finnish mill.

Progress of the John Benn Hostel Ballot

170, FLEET STREET, where a display is being held of a selection of the prizes in the John Benn Hostel Ballot, was the scene of great activity on Tuesday, when Miss Tallulah Bankhead sold tickets and photographs during the afternoon. The day was a financial record for the new depot, and scores of people anxious to win the Saloon Motor Car, or one of the many other prizes in the £1,500 list, brought their shillings to the famous actress. No time should be wasted in paying a visit to the depot, as the ballot will very soon be closing and all who have not bought tickets will have missed a great opportunity. For all who cannot visit the depot tickets may be obtained 1s. each, 10s. for a book of 11, from the Ballot Organiser, c/o Sir Ernest Benn, Bouverie House, Fleet Street, London, E.C.4.

Manchester Chemical Market

(FROM OUR OWN CORRESPONDENT.)

Manchester, November 15, 1928.

ALTHOUGH there has been a fair number of inquiries in circulation on the chemical market here, the majority of them for "heavies," there has, as a rule, been comparatively little volume about them. For the most part, buyers are still operating on a more or less hand-to-mouth basis so far as prompt or early delivery business is concerned, and individual parcels are small in consequence. With regard to prices, these are steady on the whole.

Heavy Chemicals

Current offers of phosphate range from about £12 5s. to £12 10s. per ton, and a quiet business is going through. Sulphide of sodium is attracting no more attention than before, and occasional low prices are being quoted; 60-65 per cent. concentrated solid quality is offering at round £9 10s. per ton and the commercial grade at £7 15s. A fairly steady demand is reported in the case of bichromate of soda, and values in this section are fully maintained at from 3d. to 3½d. per lb. Chlorate of soda is maintained at from 2½d. per lb. although there is still only a moderate inquiry being experienced. Caustic soda is moving off in fair quantities and at firm prices, these varying from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality. Bicarbonate of soda meets with a quietly steady demand, with current offers in the neighbourhood of £10 10s. per ton. Quotations for hyposulphite of soda show little actual change on the week, but buying interest in this section is rather slow; commercial quality is on offer at round £9 per ton, and the photographic at about £15 5s. Saltcake is in quiet request and values are maintained at last week's level of from £2 12s. 6d. to £2 15s. per ton. A moderately active business is passing in the case of alkali, and quotations are well held on the contract basis of £6 2s. 6d. per ton. With regard to bleaching powder, offers of this material are on a keenly competitive basis, and supplies are obtainable at down to £6 15s. per ton. There is a quietly steady demand about for prussiate of soda and prices are steady at from 4½d. to 5½d. per lb., according to quantity.

On the whole steady conditions obtain in the potash section. Inquiry for permanganate is not particularly active, but quotations are about held at round 5d. per lb. for the commercial grade and 5½d. per lb. for the B.P. A moderate amount of buying interest has been shown this week in the case of yellow prussiate of potash, and values are firm at from 6½d. to 7½d. per lb., according to quantity. Bichromate of potash meets with a quietly steady demand and offers are still at about 4d. per lb., with chlorate in moderate request at round 3d. per lb. Caustic potash is on the quiet side at the moment but values are maintained at from £33 5s. per ton for prompt delivery on one to five-ton lots. In the case of carbonate of potash this is in fairly regular demand at about £26 5s. per ton.

A not unexpected firming up has occurred in respect of sulphate of copper, and a fair business in this material is going through at about £26 10s. per ton, f.o.b. The demand for arsenic is still on the quiet side, with offers varying from about £16 10s. to £17 per ton at the mines for white powdered Cornish makes. The acetates of lead are in slow request and easiness is still in evidence; brown quality is quoted at about £38 10s. per ton and white at £39 10s. Nitrate of lead is quiet, but at £34 to £34 10s. per ton there has been no further change in prices. The acetates of lime are on offer at round £16 5s. per ton for the grey and £8 15s. to £9 for the brown.

Acids and Tar Products

After the long spell of scarcity and high prices, offers of citric acid for spot delivery are more plentiful, and values are correspondingly easier at about 2s. 6d. per lb., with substantially reduced prices being quoted on forward account. Tartaric acid is maintained at 1s. 4½d. per lb. and there is a fair inquiry about. Oxalic acid is rather quiet at round 3½d. per lb. Acetic acid keeps steady and is moving off in fair quantities at £36 per ton for the 80 per cent. commercial and about £66 for the glacial.

Current offers of pitch are at round £1 17s. 6d. per ton f.o.b., but the demand for this remains slow. A quiet business is being done in the case of creosote oil at 5½d. per gallon naked.

Company News

SOLIDOL CHEMICAL Co.—An interim dividend of 5 per cent. actual, less tax at 4s., is announced on the preference shares, which was payable on November 2.

LIVERPOOL NITRATE Co.—For the year to June 30, a loss is reported of £33,483 (against £5,961), converting the credit balance of £14,580 brought forward into a debit balance of £18,903.

DORMAN, LONG AND Co.—Directors have decided to pay the dividend on the 6 per cent. cumulative preference shares, less tax, for the half-year ended September 30, 1928, payable on December 31 to shareholders registered December 17.

SHELL TRANSPORT AND TRADING Co., LTD.—An interim dividend of 2s. per share, free of income tax, in respect of the year 1928, has been declared, payable at Lloyds Bank, Ltd., 39, Threadneedle Street, London, E.C.2, on or after January 5, 1929. A similar interim dividend was paid last year.

EASTMAN KODAK OF NEW JERSEY.—The directors have declared the regular dividend of 1½ per cent. on the preferred stock, regular dividend of \$1.25 per share on the common stock, and extra dividend of \$0.75 per share on the common stock, payable on January 2, 1929, to stockholders of record on November 30.

ZINC CORPORATION.—The directors have declared a dividend of 2s. per share on the Preference shares, being the last half of the fixed preferential dividend for 1928, less income tax at 2s. 5d., also an interim participating dividend of 1s. 6d. per share on both the Preference and the Ordinary shares, less income tax at 2s. 3½d., both dividends payable on January 3, 1929.

EASTERN SMELTING Co.—The net profits for the year ended July 31, 1928, amount to £77,164, and, after making provision for items shown in appropriation account and including balance brought forward, there remains to be dealt with £44,644. The directors recommend a final dividend of 7½ per cent. (less income tax) on the ordinary shares, making 12½ per cent. for the year, carrying forward £16,519. The annual meeting will be held at Stafford House, King William Street, London, E.C., November 15, at 11.30 a.m.

EASTERN CHEMICAL Co.—The report for the year ended March 31, 1928, states that the result of working, after maintaining efficiency of plant, cost of which has been charged to revenue, but without allowing anything for depreciation, was a profit of £1,128. The directors do not consider it necessary to pass anything to depreciation reserve this year, as they have had works revalued by a firm of chartered valuers, in Bombay, who have certified that present value, allowing for full depreciation, is in excess of book value less depreciation reserve. Revaluation figures are now being examined in detail, and if directors are satisfied that total valuation is a safe one, they propose to consider dealing with surplus reserve in next accounts. Conversion of the previous year's loss of £5,200 into a profit of £1,128 has been in a great measure the result of the arrangement with the company's principal Bombay competitors referred to in last report, but the benefit of this arrangement was not felt for several months owing to the working off of long date contracts previously entered into. The annual meeting will be held at 13, Fenchurch Avenue, London, E.C., on November 21, at 3 p.m.

LOW TEMPERATURE CARBONISATION.—The report for the year ended July 31, 1928, states that during the period covered by the accounts, reconstruction of capital, as sanctioned by court, has been completed, and the plant at Barugh, the first of the company's works has been brought into full operation. It has been possible to effect considerable improvements in the financial position of the company. In accordance with the scheme, there has been a reduction of £142,867 in issued amount of 8 per cent. cumulative income debenture stock, together with 8 per cent. cumulative interest thereon, by conversion of such stock into ordinary shares. The terms of conversion have provided a surplus of £57,147, which has been utilised in writing off whole of development expenditure since reconstruction of company and a substantial amount off cost of plant at Barugh. The works at Askern, near Doncaster, are in course of erection, and should be producing early in the New Year. The demand for "Coalite" far exceeds the present available supply and is growing with ever-increasing rapidity. The oils produced by the company are absorbed readily by an increasing number of users.

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FIRTH STAYBRITE STEEL for CHEMICAL PLANT

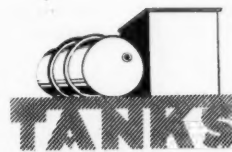


WHEN you plan to put in a new plant—whatever it may be—a mixer—an acid tank—an evaporating pan—any form of chemical equipment—corrosion will occupy a prominent, if not the most important, place in your calculations. Here, there and everywhere, in the minds of leading chemical engineers, FIRTH STAYBRITE STEEL is minimising the corrosion factor—the doubts as to the useful life of the plant—just because it does away once for all with the bogey of chemical attack.

No other commercial metal can substantiate the claim to a longer or more useful list of acids, alkalies, or other conditions against which it is practically immune from deterioration.

Moreover, as a steel for constructional purposes, it possesses remarkable mechanical properties.

Write for booklet 149, which gives full details as to the use of Firth Staybrite Steel in the Chemical and Textile Industries.



THOS. FIRTH & SONS, LTD., SHEFFIELD

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

STANSFIELD, John, Boothfold, Waterfoot, Rossendale, chemical manufacturer. (C.C., 17/11/28.) £13 15s. October 10.

BRYTE, LTD., 8, Red Lion Square, W.C., manufacturing chemists. (C.C., 17/11/28.) £17 11s. October 9.

SWAN, Wm., 25, Norman Drive, Eccleshill, Bradford, soap manufacturer. (C.C., 17/11/28.) £39 13s. 6d. October 2.

Deed of Arrangement

[The following deeds of arrangement with creditors have been filed under the Deeds of Arrangement Act, 1914. Under this Act it is necessary that private arrangements other than those executed in pursuance of the Bankruptcy Act shall be registered within seven clear days after the first execution by the debtor or any creditor. These figures are taken from the affidavit filed with the registered deed, but may be subject to variation on realisation.]

FLINT, Frank, 101 and 103, London Road, 6, Meadowhead, and 50, Bannerdale Road, Sheffield, painting contractor. (D.A., 17/11/28.) Dated November 2, filed November 9. Trustee, C. F. Lawton, 21, York Street, Sheffield, C.A. Secured creditors, £1,536; liabilities unsecured, £7,806; assets, less secured claims, £3,578.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case, the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

BRITISH OIL REFINERS, LTD., London, N.W. (M., 17/11/28.) Registered October 31, £1,500 debenture, to P. J. Harratt, 44, Upper Gloucester Place, Regent's Park, N.W., engineer; general charge.

MATTHEWS AND WILSON, LTD., London, E.C., manufacturing chemists. (M., 17/11/28.) Registered November 3, £100 debentures, part of £2,000; general charge. *Nil. December 31, 1927.

Satisfaction

HUMIDINE, LTD., London, E., paint manufacturers. (M.S., 17/11/28.) Satisfaction registered November 2, £1,500, registered between June 7, 1911, and October 31, 1912.

London Gazette, &c.

Company Winding Up Voluntarily

BAKER AND CO. (MANCHESTER), LTD. (C.W.U.V., 17/11/28.) At an extraordinary general meeting held at 1, Cooper Street, Manchester, on August 23, the following special resolutions were duly passed; and at a subsequent extraordinary general meeting of the members of the said company, also duly convened, and held at the same place on September 7, were duly confirmed. (1) "That it is desirable to reconstruct the company and accordingly that the company shall be wound up voluntarily and that Squire Garner, Incorporated Accountant, of the firm of Willett, Son and Garner, 1, Cooper Street, Manchester, be and is hereby appointed liquidator for the purposes of such winding-up." (2) "That the liquidator be and is hereby authorised to consent to the registration of a new company to be named 'Baker and Company (Manchester), Limited.'"

New Companies Registered

BAUXITE AND CHEMICAL DEVELOPMENT SYNDICATE, LTD., 5, Victoria Street, London, S.W.1.—Registered November 7. Nom. capital, £10,000 in £1 shares. To adopt an agreement with Macpherson and Co., to acquire, work and deal with mines, minerals, bauxite and other deposits, and to sell the same in India and elsewhere; to manufacture sulphate of ammonia, alumina and all metallic and chemical products and compounds, etc. Directors:—S. H. Godfrey, R. H. A. Gresson, A. H. Wilson.

SHAKA SALT AND CHEMICAL CO., LTD., Middlewich Road, Sandbach, Ches.—Registered November 9. Nom. capital, £4,000 in £1 shares. To acquire the business of Shaka Salt Co. at Church, Minshull, Ches., and to carry on the business of manufacturers of and dealers in salt brine, rock salt, alkalis, chlorine, bleaching powder and liquors, soda compounds and other chemical products, lime and all residual and other products and by-products of brine, lime chlorine and any other chemical or other substances, etc. Directors:—A. Burrows, S. Wright, A. Wright.

STANDARD ASBESTOS FLOORING, LTD., 19, St. Dunstan's Hill, London, E.C.3. Registered November 9. Nom. capital, £5,000 in 5,000 5 per cent. non-cumulative preference shares of £1 each. To carry on the business of paviors and manufacturers of and dealers in asbestos and magnesite tiles and all kinds of artificial stone and bricks; manufacturing chemists, etc. Directors:—E. A. Roby, Beatrice Cheetham, W. Fryer and H. A. Freier.

Dead Sea Potash

LORD DANESFORT, addressing a meeting on Tuesday of the Near and Middle East Association, emphasised his demand for the consideration by Parliament of any proposal to grant a concession of the rights for the commercial exploitation of the Dead Sea potash deposits. It was vital, he said, that any concessionaires should not be allowed to ally themselves with the German potash monopoly, which controlled 77 per cent. of the world's supplies. Limits should also be placed on the profits to be obtained from any concession, and the peoples of Palestine and Transjordan should share in those profits. Dr Annie Homer said she had been identified with no less than three groups which had tendered for the concession in order to break the German potash monopoly, and to supply the cheap potash that Britain, Egypt, the Sudan, and the Dominions needed. During the past twelve years, each time that there had been a prospect of the Dead Sea concession being worked under British control, publicity campaigns had immediately begun in opposition. She had evidence that the German potash syndicate had been doing its best to prevent investors from putting their money into the Dead Sea scheme, the enormous value of which was shown by the British Government's own figures of the potential yield. The German syndicate knew that if once the Dead Sea deposits were worked, their own export industry, more particularly to the United States, would be stopped. German potash, she said, cost £4 18s. per ton at the mine-head, and Alsatian potash £2 18s. 2d. per ton, while Dead Sea potash could be produced for less than £1 per ton.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal" have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

CREOSOTE.—The Town Council of Johannesburg is calling for tenders, to be presented in South Africa by November 22, 1928, for the supply of 120 tons (1 ton=2,000 lb.) of creosote. (Reference No. B.X. 4858.)

PHARMACEUTICAL CHEMICALS.—A firm of importers established at Brussels are desirous of getting into touch with British manufacturers of pharmaceutical chemicals. (Reference No. 386.)

